# GROWING RISKS TO THE BUDGET AND THE ECONOMY

## HEARING

BEFORE THE

## COMMITTEE ON THE BUDGET
## HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTEENTH CONGRESS

SECOND SESSION

HEARING HELD IN WASHINGTON, DC, SEPTEMBER 14, 2016

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# GROWING RISKS TO THE BUDGET AND THE ECONOMY

**WEDNESDAY, SEPTEMBER 14, 2016**

HOUSE OF REPRESENTATIVES,
COMMITTEE ON THE BUDGET,
*Washington, DC.*

The Committee met, pursuant to call, at 10:04 a.m., in room 210, Cannon House Office Building, Hon. Tom Price, M.D., (chairman of the Committee) presiding.

Present: Representatives Price, Rokita, Grothman, Renacci, Johnson, Womack, Woodall, Palmer, Blum, Sanford, Hartzler, Brat, Ryan, Pascrell, and Norcross.

Chairman PRICE. The hearing will come to order.

We want to welcome everybody to the Budget Committee and our hearing this morning on growing risks to the budget and the economy. We have got a lot of folks here.

And I especially want to welcome a delegation from the country of Sri Lanka. We welcome you to our budget hearing today. Thanks for joining us. Maybe you can teach us a few things about getting a budget on track.

This morning's hearing is entitled "Growing Risks to the Budget and the Economy." Regardless of one's political posture, there are clearly some warning signs before us. In many ways, the current budget and the current economy are, in fact, risks that are intimately related to each other. The Congressional Budget Office itself provides all of us with some sobering information, demonstrating that policymakers have ample evidence and information revealing just how severe the risks are and how much riskier they will become in the not-too-distant future.

Today, the Nation's total debt tops $19 trillion. At the end of the 10-year budget window, over the next decade, CBO projects we will borrow another $8.6 trillion, accumulating a total level of publicly held debt equivalent to more than 85 percent of our economy. That is twice the average level of the past century. It is the highest our Nation has had since the end of World War II.

And, of course, unlike the 1940s, today's debt is not being driven by a massive temporary mobilization of military might. In 2016, our debt trajectory is being driven by a chronic imbalance in our Nation's budget for which there is no end in sight under current policy or current law.

In fact, today's growing debt is not so much the result of defeating a threat to America's national security—it is, indeed, the threat itself. The fiscal imbalance that we face, the uncertainty that is

sown into our economy by a looming fiscal crisis, all of this weakens our Nation.

And, yet, despite all of this, there are many who are saying that just because interest rates are so low, that we just ought to keep borrowing more and more money—run up the credit card while credit is relatively cheap. This is, as most folks understand and appreciate, horribly shortsighted thinking.

Publicly held debt is over $14 trillion, more than three-quarters the size of our economy. We are already past what economists say is a sustainable debt burden, let alone advisable or fair to leave our kids and our grandkids.

The fastest-growing component in our budget is not national security spending; it is not health care; it is not research and development; it is not infrastructure to repair roads or bridges; it is not aid to the Nation's poor; it is interest on our Nation's debt. Unless something is done to change course, in 2026 America will pay $712 billion a year in interest payments alone, just shy of what we are projected to spend on our entire national defense.

And interest payments, interest dollars, are dollars that can't be used to pay the rent or to send a kid to school or to buy a car or to buy a house or to start or to expand a business. All the things that the American people say they want to do with their money will be harmed by the enormous interest payments.

Annual deficits are projected to exceed $1 trillion in that same time period. These deficits will come at a time when Washington will be taking in higher-than-average tax revenue. This means that we will be taking in more tax money and going further in the hole, further into debt. Clearly, the government is not being starved of revenue.

That being said, a stronger economy that creates higher revenues is truly the key to addressing our fiscal crisis. If our economy were growing today at just the historical average, roughly 3 percent annually, instead of 2 percent that is projected over the next decade, we would be in a much better fiscal position than we are right now.

According to the Congressional Budget Office, if economic growth were just 0.1 percentage points higher per year than currently projected, annual deficits over the next 10 years would be reduced by $327 billion. Just through better economic output, we could reduce future deficits by as much as $3.3 trillion over the next decade if we were growing at our historical average.

In short, economic growth is a vital ingredient to any coherent strategy to get the Nation's fiscal house in order. Poor economic policies contribute to the poor fiscal health of the Nation, and today we are experiencing the worst economic recovery of the modern era.

The macro effects of slow economic growth, however, are only one side of the story. The uncertainty that the country as a whole has experienced, due in part to lackluster economic growth, is also experienced by millions of individual Americans—families, entrepreneurs—in their own lives and in their own ways. Many Americans are struggling to make ends meet at a time when opportunities are fewer and the cost of basic necessities like health care and education are rising.

And while the headline unemployment rate has dropped to under 5 percent, the underemployment rate, that which takes into ac-

count those who are working part-time because they can't find full-time work and those who have just given up looking for work, is currently 9.7 percent. That is higher than where it was prior to the recession.

Meanwhile, the rate of participation in America's labor market, the percent of the population who are able to work who are working, is at levels not seen since the late 1970s, and the rate of worker productivity has declined for the last three quarters.

At a time when over 60 percent of the country believes the Nation is on the wrong track, it is time we adopted a pro-growth policy agenda. And when that is coupled with sound budgetary strategy, it will jump-start America's economic engine and put us on a sustainable fiscal trajectory.

House Republicans, led in part by this committee's efforts on fiscal and economic matters, have been championing bold solutions to achieve those goals.

And to further this discussion, we are joined today by Dr. John Cochrane, a senior fellow at the Hoover Institution; Dr. Jared Bernstein, who is a senior fellow at the Center on Budget and Policy Priorities; and Dr. Doug Holtz-Eakin, who is president of the American Action Forum.

I want to thank each and every one of you for taking part in today's hearing.

And I am pleased now to yield to the current temporary ranking member of the day, Mr. Ryan from Ohio.

[The prepared statement of Chairman Price follows:]

CHAIRMAN PRICE OPENING STATEMENT: GROWING RISKS TO THE BUDGET AND THE ECONOMY

Good morning.

The title of this hearing is the "Growing Risks to the Budget and the Economy." Regardless of one's political posture—there are clearly some warning signs before us. In many ways the current budget and the current economy are in fact risks unto each other.

The Congressional Budget Office (CBO) provides all of us with some sobering information—demonstrating that policymakers have ample evidence and information revealing just how severe the risks are now and will become in the not too distant future.

Today, the nation's total debt tops $19 trillion. At the end of the ten year budget window, over the next decade, CBO projects we will borrow another $8.6 trillion—accumulating a total level of publicly-held debt equivalent to more than 85 percent of our economy. That is twice the average level of the past half century. It is the highest our nation has had since the end of World War II.

Of course, unlike the 1940s, today's debt is not being driven by a massive, temporary mobilization of military might. In 2016, our debt trajectory is being driven by a chronic imbalance in our nation's budget, for which there's no end in sight under current policy and current law.

In fact, today's growing debt is not so much the result of defeating a threat to America's national security—as it is the threat itself. The fiscal imbalance we face; the uncertainty that is sown into our economy by a looming fiscal crisis—this all weakens our nation.

And yet, despite all of this, there are many who are saying that because interest rates are so low that we ought to borrow even more money—run up the credit card while credit is relatively cheap.

This is horribly short-sighted thinking. Publicly held debt is over $14 trillion—more than three-fourths the size of our economy. We are already past what economists say is a sustainable debt burden—let alone advisable or fair to leave our kids and grandkids.

The fastest growing component in our budget is not national security spending; it's not health care; not research and development; not infrastructure to repair roads and bridges; not aid for the nation's poor. It is interest payments on our nation's

debt. Unless something is done to change course, in 2026 America will pay $712 billion in interest payments alone—just shy of what we are projected to spend on our entire national defense. And interest payments are dollars that can't be used to pay the rent, send a kid to school, buy a house, buy a car, start or expand a business—all of the things Americans want to do with their money will be harmed by the ever increasing interest payments.

Annual deficits are projected to exceed $1 trillion in that same period of time. These deficits will come at a time when Washington will be taking in higher than average tax revenue. This means that we'll be taking in more tax money—and going further in the hole—further into debt. Clearly, government is not being starved of revenue.

That being said, a stronger economy that creates higher revenues is the key to addressing our fiscal crisis. If our economy was growing today at just the historical average—roughly three percent instead of the two percent projected over the next decade—we would be in a better fiscal position than we are right now. According to CBO, if economic growth were just 0.1 percentage points higher per year than currently projected, annual deficits over the next 10 years would be reduced by $327 billion. Just through better economic output, we could reduce future deficits by as much as $3.3 trillion over the next decade if we were growing at our own historical average.

In short, economic growth is a vital ingredient to any coherent strategy to get the nation's fiscal house in order. Poor economic policies contribute to the poor fiscal health of the nation, and today we are experiencing the worst economic recovery in the modern era.

The macro effects of slow economic growth, however, are only one side of the story. The uncertainty that the country as a whole is experiencing due—in part—to lackluster economic growth is also experienced by millions of individual Americans, families, and entrepreneurs in their own lives and in their own ways. Many Americans are struggling to make ends meet at a time when opportunities are fewer and the cost of basic necessities like health care and education are rising.

While the headline unemployment rate has dropped to under five percent, the "under-employment rate"—that which takes into account those who are working part-time because they cannot find full-time work and those who have given up looking for work—is currently 9.7 percent. That's higher than where it was prior to the recession. Meanwhile, the rate of participation in America's labor market—the percent of the population who are able to work—who are working—is at levels not seen since the late 1970s, and the rate of worker productivity has declined for three straight quarters.

At a time when over sixty percent of the country believes the nation is on the wrong track, it is time we adopted a pro-growth policy agenda—and when that is coupled with a sound budgetary strategy, it will jumpstart America's economic engine and put us on a sustainable fiscal trajectory. House Republicans—led in part by this committee's efforts on fiscal and economic matters—have been championing bold solutions to achieve those goals.

To further this discussion we are joined today by Dr. John Cochrane, Senior Fellow at the Hoover Institution; Dr. Jared Bernstein, Senior Fellow at the Center on Budget and Policy Priorities; and Dr. Douglas Holtz-Eakin, President of the American Action Forum.

Thank you for taking part in what I hope will be a healthy and enlightening conversation.

And with that, I yield to the Ranking Member, Mr. Ryan.

Mr. RYAN. Thank you, Mr. Chairman. I would like to thank our witnesses for being here. Please excuse my voice. I got a little cold from my 2-year-old son after his first week at school. Germ factory. We need a hearing on that, I think, Mr. Chairman.

There are few tasks more fundamental to the function of this Committee than to discuss the budget and economic outlook, and I think this is really one of the few committees that is still having very, very serious discussions about the future of the country. In this charged political climate, it is hard to get a rational discussion in many quarters these days. So I hope today's panel will shed some light for us on approaches Congress should consider to improve the lives of Americans going forward.

We have all known for some time that we are facing a daunting fiscal future. Baby boomers are reaching retirement age, and our retirees, current retirees, are living longer. So this demographic shift drives the increases in the cost of health care, retirement programs, and budget deficits projected by CBO over the next 10 years and beyond.

Similarly, CBO's projected slowdown in economic growth is driven by slower-than-past growth in the labor force and productivity. Again, we have seen these trends coming for decades.

These are major concerns that deserve our attention. We must get the economy moving so our hard-working Americans can enjoy a rising standard of living. And we must adjust our fiscal policies to lessen future budget deficits, which are unsustainable without responsible action. So I am glad we are all in agreement here, as Democrats and Republicans, that this is a major issue that we need to address.

Now, Congress has the fiscal policy tools, I believe, that we need to act. And we did it at the start of the recession. President Obama inherited the weakest economy since the Great Depression, and, together, we acted swiftly to turn things around.

Within 6 months, the economy began to grow again. We are now in the fourth-longest economic expansion in American history. We have added 15 million private sector jobs and cut the unemployment rate in half. Economists have estimated that without the aggressive policy response implemented by the President and Congress and the Federal Reserve, the recession would have lasted more than 3 years, cost twice as many jobs, and pushed the unemployment rate to 16 percent rather than the 10 percent we actually saw.

Had we not employed the fiscal policy tools in our toolkit, we would have a weaker economy and larger deficits today.

So if we look at the economic situation in Europe, which our panelists know all too much about, Europe responded to the economic crisis with austerity, and this approach undermined their recovery, the deep cuts. And, unfortunately, Congress has also undermined our economy over the past 6 years by blocking additional proposals by President Obama and insisting on spending cuts, the kind of austerity measures that have failed elsewhere. President Obama's jobs bill still languishes here in Congress.

Democrats have a different approach. We want to enact forward-looking policies that will strengthen the main drivers of our strong economy. We want sustained investment. And while we have to make tough choices to deal with the deficit and the debt, we must remain committed to responsibly funding our national priorities, because these priorities lead to the growth that the chairman was talking about.

We must promote long-term job growth by modernizing transportation networks—that takes investment; repairing aging infrastructure—that takes investment; investing in workforce education—that takes investment; and supporting the research and development of advanced manufacturing technologies which will lead to the next generation of good-paying jobs in America.

This will create the millions of jobs, this will grow our economy, facilitate American exports, create a level playing field for American workers, and increase the return on taxpayer investment.

By contrast, our Republican colleagues continue to push an agenda that returns to the same failed policies that created and prolonged the recession: deregulation, new tax breaks for the wealthy, and austere spending cuts. And under President Bush, we actually lost private sector jobs. Under President George W. Bush, who fully implemented the supply-side economic theory, we lost private sector jobs.

These tactics do little to expand the workforce or improve productivity. I think we can all agree that a stronger economy is the single most important factor that would improve the budget and fiscal outlook, even if we differ on the best approach to stimulate growth across the economy.

Democrats are eager to discuss this, Mr. Chairman, and any additional efforts to reduce future deficits, but we need a willing partner, not a party that seeks to disinvest in America's future and threaten our vital society and our social safety net without regard to the damaging impact of austerity on our economy and its recovery.

[The prepared statement of Tim Ryan follows:]

REPRESENTATIVE TIM RYAN OPENING STATEMENT

Thank you, Mr. Chairman. I would like to thank our witnesses for being here. Please excuse my voice. I got a little cold from my 2-year-old son after his first week at school. Germ factory. We need a hearing on that, I think, Mr. Chairman.

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posals by President Obama and insisting on spending cuts, the kind of austerity measures that have failed elsewhere. President Obama's jobs bill still languishes here in Congress. Democrats have a different approach. We want to enact forward looking policies that will strengthen the main drivers of our strong economy. We want sustained investment. And while we have to make tough choices to deal with the deficit and the debt, we must remain committed to responsibly funding our national priorities, because these priorities lead to the growth that the chairman was talking about.

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Democrats are eager to discuss this, Mr. Chairman, and any additional efforts to reduce future deficits, but we need a willing partner, not a party that seeks to disinvest in America's future and threaten our vital society and our social safety net without regard to the damaging impact of austerity on our economy and its recovery.

Chairman PRICE. I thank the gentleman.

As background for this hearing, the Congressional Budget Office has their August update as well as their long-term budget outlook. And I ask unanimous consent to insert into the record the CBO reports "An Update to the Budget and Economic Outlook: 2016 to 2026," published on August 23, 2016, and the "2016 Long-Term Budget Outlook," published on July 12, 2016.

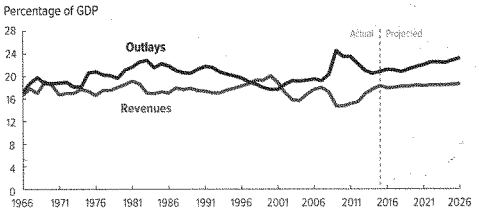
Without objection, so ordered.

[The information follows:]

CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

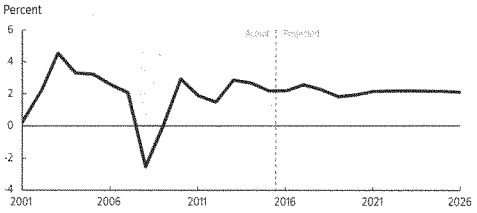
CBO

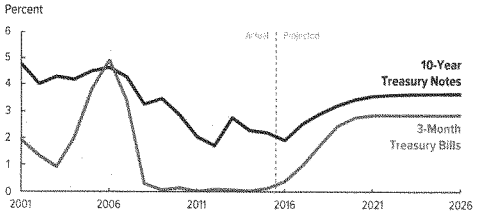
# An Update to the Budget and Economic Outlook: 2016 to 2026




Over the next decade, **outlays** are projected to grow more quickly than **revenues**, increasing the debt.

**Growth in real GDP** will be driven by consumer spending and by business and residential investment during the next few years and will be modest over the coming decade, CBO projects.




**Interest rates** on Treasury securities are projected to rise steadily over the next few years, reflecting the continued economic improvement.

AUGUST 2016

# Notes

Unless otherwise indicated, all years referred to in describing the budget outlook are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end. Years referred to in describing the economic outlook are calendar years.

Numbers in the text, tables, and figures may not add up to totals because of rounding. Also, some values are expressed as fractions to indicate numbers rounded to amounts greater than a tenth of a percentage point.

Some figures in this report have vertical bars that indicate the duration of recessions. (A recession extends from the peak of a business cycle to its trough.)

The Congressional Budget Office's economic forecast was completed in early July. Unless otherwise indicated, projections of economic variables presented in this report are based on information that was available at that time; in particular, the projections do not reflect the annual revisions to the national income and product accounts, which this year the Bureau of Economic Analysis released on July 29. However, the actual and historical data shown in figures describing the economic forecast are based on those revisions, and so are discussions of recent economic events in the text. The implications of the revisions for CBO's economic projections are described in Box 2-1.

As referred to in this report, the Affordable Care Act comprises the Patient Protection and Affordable Care Act (Public Law 111-148), the health care provisions of the Health Care and Education Reconciliation Act of 2010 (P.L. 111-152), and the effects of subsequent judicial decisions, statutory changes, and administrative actions.

Supplemental data for this analysis are available on CBO's website (www.cbo.gov/publication/51908), as is a glossary of common budgetary and economic terms (www.cbo.gov/publication/42904).

# Contents

# Summary

In fiscal year 2016, the federal budget deficit will increase in relation to economic output for the first time since 2009, the Congressional Budget Office estimates. If current laws generally remained unchanged—an assumption underlying CBO's baseline projections—deficits would continue to mount over the next 10 years, and debt held by the public would rise from its already high level.

CBO's estimate of the deficit for 2016 has increased since the agency issued its previous estimates in March, primarily because revenues are now expected to be lower than earlier anticipated.[1] In contrast, the cumulative deficit through 2026 is smaller in CBO's current baseline projections than the shortfall projected in March, chiefly because the agency now projects lower interest rates and thus lower outlays for interest payments on federal debt. Nevertheless, by 2026, the deficit is projected to be considerably larger relative to gross domestic product (GDP) than its average over the past 50 years.

CBO's economic forecast—which serves as the basis for its budget projections—indicates that, after a tepid expansion in the first half of 2016, economic growth will pick up in the second half of the year. That faster pace is expected to continue through 2017 before moderating in 2018. In CBO's estimation, the faster growth over the next two years will spur hiring, increase employment and wages, and put upward pressure on inflation and interest rates. In the latter part of the 10-year projection period, however, output will be constrained by a relatively slow increase in the nation's supply of labor.

The growth in GDP that CBO now projects is slower throughout the 2016–2026 period than the agency projected in January.[2] Weaker-than-expected economic growth indicated by data released since January, recent developments in the global economy, and a reexamination of projected productivity growth contributed to that downward revision. The reduction to CBO's projections of interest rates reflects the revisions to projected economic growth as well as CBO's reassessment of the future demand for Treasury securities.

## The Budget Deficit for 2016 Will Be About One-Third Larger Than Last Year's

CBO now estimates that the 2016 deficit will total $590 billion, or 3.2 percent of GDP, exceeding last year's deficit by $152 billion (see Summary Table 1). About $41 billion of that increase results from a shift in the timing of some payments that the government would ordinarily have made in fiscal year 2017; those payments will instead be made in fiscal year 2016 because October 1, 2016 (the first day of fiscal year 2017), falls on a weekend.[3] If not for that shift, the projected deficit in 2016 would be $549 billion, or 3.0 percent of GDP—still considerably higher than the deficit recorded for 2015, which was 2.5 percent of GDP.

The deficit is growing in 2016 because revenues are up only slightly, by less than 1 percent ($26 billion), whereas

1. For CBO's March 2016 projections, see Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384.

2. CBO's previous economic projections were reported in January 2016; see Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), www.cbo.gov/publication/51129.

3. October 1 will fall on a weekend not only in calendar year 2016 but also in calendar years 2017, 2022, and 2023. In all of those years, certain payments due on October 1 will instead be made at the end of September and thus be shifted into the previous fiscal year. The shifts noticeably boost projected spending and deficits in fiscal years 2016 and 2022 and reduce them in fiscal years 2018 and 2024.

Summary Table 1.

**CBO's Baseline Budget Projections**

| | Actual, 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | In Billions of Dollars | | | | | | | |
| Revenues | 3,250 | 3,276 | 3,421 | 3,600 | 3,745 | 3,900 | 4,048 | 4,212 | 4,385 | 4,574 | 4,779 | 4,993 | 18,714 | 41,658 |
| Outlays | 3,688 | 3,866 | 4,015 | 4,120 | 4,370 | 4,614 | 4,853 | 5,166 | 5,373 | 5,574 | 5,908 | 6,235 | 21,973 | 50,229 |
| Deficit | -438 | -590 | -594 | -520 | -625 | -714 | -806 | -954 | -988 | -1,000 | -1,128 | -1,243 | -3,258 | -8,571 |
| Debt Held by the Public at the End of the Year | 13,117 | 14,073 | 14,743 | 15,325 | 16,001 | 16,758 | 17,597 | 18,584 | 19,608 | 20,649 | 21,824 | 23,118 | n.a. | n.a. |
| | | | | | | | As a Percentage of Gross Domestic Product | | | | | | | |
| Revenues | 18.2 | 17.8 | 17.9 | 18.1 | 18.1 | 18.2 | 18.2 | 18.3 | 18.3 | 18.3 | 18.4 | 18.5 | 18.1 | 18.3 |
| Outlays | 20.7 | 21.1 | 21.0 | 20.7 | 21.2 | 21.6 | 21.9 | 22.4 | 22.4 | 22.3 | 22.7 | 23.1 | 21.3 | 22.0 |
| Deficit | -2.5 | -3.2 | -3.1 | -2.6 | -3.0 | -3.3 | -3.6 | -4.1 | -4.1 | -4.0 | -4.3 | -4.6 | -3.2 | -3.8 |
| Debt Held by the Public at the End of the Year | 73.6 | 76.6 | 77.2 | 77.0 | 77.5 | 78.4 | 79.3 | 80.5 | 81.7 | 82.7 | 84.0 | 85.5 | n.a. | n.a. |

Source: Congressional Budget Office.

n.a. = not applicable.

outlays are projected to rise by 5 percent ($178 billion). As a share of GDP, total revenues are expected to fall from 18.2 percent to 17.8 percent. In contrast, outlays are projected to rise to 21.1 percent of GDP, up from 20.7 percent last year. That increase is the result of the following: a 6 percent rise, in nominal terms, in mandatory spending for programs such as Social Security and Medicare (which is generally governed by statutory criteria); a 1 percent increase in discretionary outlays (which stem from annual appropriations); and an 11 percent jump in net interest outlays.[4] Debt held by the public will amount to nearly 77 percent of GDP by the end of 2016, CBO estimates—3 percentage points higher than last year and its highest ratio since 1950.

## Growing Deficits Projected Through 2026 Would Drive Up Debt

In CBO's baseline projections, the budget deficit is generally on an upward trend over the next decade, reaching 4.6 percent of GDP in 2026. A slight decline in the deficit over the next two years is largely explained by the shift in the timing of payments from one fiscal year to another because certain scheduled payments fall on weekends. In later years, continued growth in spending—particularly for Social Security, Medicare, and net interest—would outstrip growth in revenues, resulting in larger deficits and increasing debt.

### Outlays

In CBO's projections, annual federal outlays rise by $2.4 trillion (or about 60 percent) from 2016 to 2026. Relative to the size of the economy, outlays remain near 21 percent of GDP for the next few years—higher than their average of 20.2 percent over the past 50 years. Later in the coming decade, the growth in outlays would exceed growth in the economy, and by 2026, outlays would rise to 23.1 percent of GDP. That increase reflects significant growth in mandatory spending and interest payments, offset somewhat by a decline, in relation to the size of the economy, in discretionary spending. More specifically:

- Outlays for mandatory programs are projected to rise by close to 70 percent in nominal terms from 2016 to 2026, increasing as a percentage of GDP by almost 2 percentage points over that period. That increase is mainly attributable to the aging of the population and rising health care costs per person, which substantially boost projected spending for Social Security and Medicare.

4. About $37 billion of the increase in mandatory spending and $4 billion of the increase in discretionary spending result from the timing shift mentioned above. If not for that shift, total outlays would rise by 4 percent this year (and equal 20.8 percent of GDP); mandatory spending would rise by 4 percent, and discretionary spending by 1 percent.

- Because of rising interest rates and, to a lesser extent, growing federal debt, the government's interest payments on that debt are projected to rise sharply over the next 10 years—nearly tripling in nominal terms and almost doubling relative to GDP.

- In contrast, discretionary spending is projected to rise by a much smaller amount in nominal terms, consequently dropping to a smaller percentage of GDP than in any year since 1962 (the first year for which comparable data are available).

### Revenues

If current laws generally remained unchanged, revenues would gradually rise—by $1.7 trillion, or about 50 percent, from 2016 to 2026—increasing from 17.8 percent of GDP in 2016 to 18.5 percent by 2026. They have averaged 17.4 percent of GDP over the past 50 years.

Only revenues from individual income taxes would grow faster than the economy. In CBO's baseline, with revenues from each source measured as a percentage of GDP:

- Receipts from individual income taxes increase each year—for a total rise of 1.3 percentage points over the 10-year period—because of real bracket creep (the process in which, as income rises faster than prices, an ever-larger proportion of income becomes subject to higher tax rates), rising distributions from tax-deferred retirement accounts, an increase in the share of wages and salaries earned by higher-income taxpayers, and other factors.

- Remittances from the Federal Reserve, which have been unusually high since 2010, return to more typical levels, dropping by 0.4 percentage points from 2016 to 2026.

- Payroll tax receipts decline by 0.2 percentage points over the next decade, primarily because of the expected increase in the share of wages going to higher-income taxpayers.

- Corporate income tax receipts change little over the 10-year period.

### Debt Held by the Public

As deficits accumulate in CBO's baseline, debt held by the public rises from 77 percent of GDP ($14 trillion) at the end of 2016 to 86 percent of GDP ($23 trillion) by 2026. At that level, debt held by the public, measured as a percentage of GDP, would be more than twice the average over the past five decades (see Summary Figure 1). Beyond the 10-year period, if current laws remained in place, the pressures that contributed to rising deficits during the baseline period would accelerate and push up debt even more sharply. Three decades from now, for instance, debt held by the public is projected to be about twice as high, relative to GDP, as it is this year—which would be higher than the United States has ever recorded.[5]

Such high and rising debt would have serious negative consequences for the budget and the nation:

- Federal spending on interest payments would increase substantially as a result of increases in interest rates, such as those projected to occur over the next few years.

- Because federal borrowing reduces total saving in the economy, the nation's capital stock would ultimately be smaller, and productivity and total wages would be lower.

- Lawmakers would have less flexibility to use tax and spending policies to respond to unexpected challenges.

- The likelihood of a fiscal crisis in the United States would increase. There would be a greater risk that investors would become unwilling to finance the government's borrowing needs unless they were compensated with very high interest rates; if that happened, interest rates on federal debt would rise suddenly and sharply.

## The Projected Deficit for 2016 Is Larger Than CBO's March Estimate, but the 10-Year Deficit Is Below Previous Projections

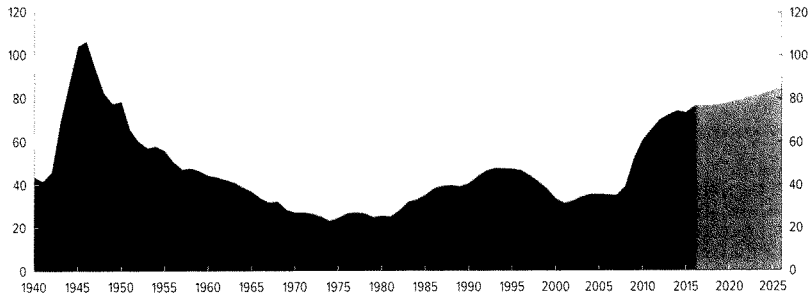
The deficit that CBO now projects for 2016 is $56 billion larger than the amount the agency estimated in March. Revenues and outlays are both expected to be lower: revenues by $87 billion, mostly as a result of lower collections of individual and corporate income taxes, and outlays by $31 billion.

5. See Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), www.cbo.gov/publication/51580. The projection of debt held by the public that CBO published in that report was based on the agency's March 2016 baseline projections.

**Summary Figure 1.**

**Federal Debt Held by the Public**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

For the 2017–2026 period, CBO now projects a cumulative deficit that is $0.7 trillion smaller than the $9.3 trillion the agency previously projected. The average deficit in the baseline over the 2017–2026 period is 3.8 percent of GDP, compared with the 4.0 percent CBO projected in March.

That decrease stems primarily from revisions to CBO's economic forecast. Projected revenues over the 10-year period are $0.4 trillion (1 percent) lower, in large part because of lower projected nominal GDP. However, projected outlays are lower by much more—$1.1 trillion (2 percent)—mainly because CBO anticipates lower interest rates, and thus smaller interest payments, than it did in March.

By 2026, debt held by the public is projected to total $23 trillion, whereas in March it was projected to total $24 trillion. Because CBO also lowered its projection of GDP for that year, both of those amounts equal 86 percent of GDP.

## Economic Growth and Interest Rates Are Projected to Increase in the Near Term but Remain Lower Than in Earlier Decades

According to CBO's projections, the economic expansion over the next two years will reduce the quantity of underused resources, or "slack," in the economy. In addition, interest rates on federal borrowing are expected to rise over the next few years. Beyond the next two years, the economy is expected to grow more slowly.

### Economic Growth

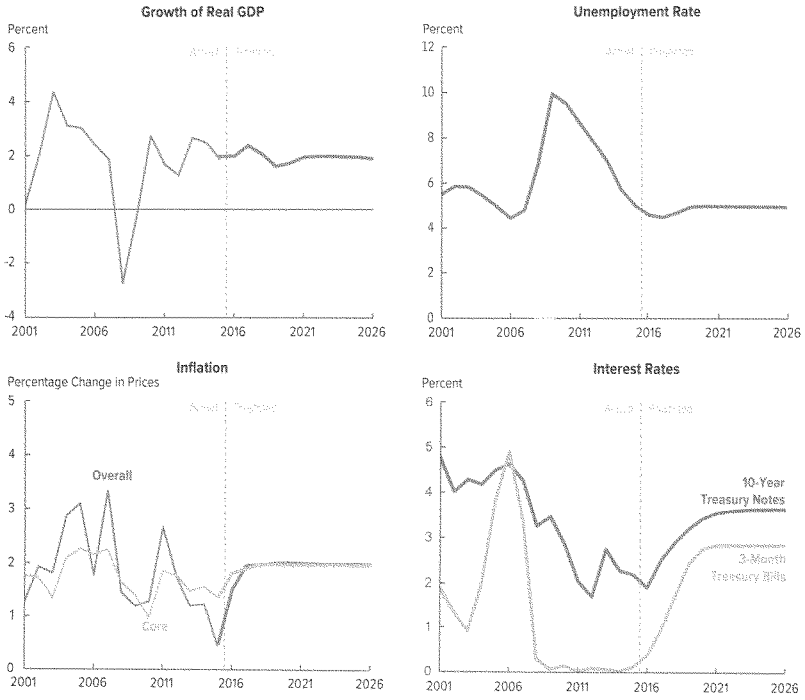
In real terms (that is, with adjustments to exclude the effects of inflation), GDP rose at an annual rate of 1.0 percent in the first half of calendar year 2016. However, CBO expects that the economy will expand more rapidly in the coming months, with GDP growing by 2.0 percent over the whole of 2016 and by 2.4 percent in 2017—mainly because the major forces restraining the growth of investment, such as a decline in oil prices, have begun to subside (see Summary Figure 2). Economic growth is expected to slow in 2018 and fall below but remain close to the growth of potential (maximum sustainable) GDP in 2019 and 2020. Most of the growth in output during the coming years will be driven by consumers, businesses, and home builders, CBO anticipates.

CBO's projections for the second half of the 10-year period are not based on forecasts of cyclical developments in the economy; rather, they are based on the projected trends of underlying factors, such as growth in the labor force, the number of hours worked, and productivity. According to those projections, productivity will grow faster than it did over the past decade, and both actual and potential GDP will expand at an average annual rate of about 2 percent. However, that rate represents a significant slowdown from the average growth in

**Summary Figure 2.**

## Actual Values and CBO's Projections of Key Economic Indicators

CBO projects that economic activity will expand at a modest pace this year and next, lowering the unemployment rate and putting upward pressure on inflation and interest rates.




Source: Congressional Budget Office, using data from the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the Federal Reserve.

Real gross domestic product is the output of the economy adjusted to remove the effects of inflation. The unemployment rate is a measure of the number of jobless people who are available for work and are actively seeking jobs, expressed as a percentage of the labor force. The overall inflation rate is based on the price index for personal consumption expenditures; the core rate excludes prices for food and energy.

Data are annual. For real GDP and inflation, values from 2001 through 2015 (the thin lines) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2026 (the thick lines) reflect the data available and projections made before July 29. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next year. For the unemployment and interest rates, actual data are plotted through 2015, and all data are fourth-quarter values.

GDP = gross domestic product.

potential output that occurred during the 1980s, 1990s, and early 2000s—mainly because of slower projected growth in the nation's supply of labor, which is largely attributable to the ongoing retirement of baby boomers and the relatively stable labor force participation rate among working-age women.

### Interest Rates

Because of slow economic growth in the first half of the year and increased uncertainty about global economic growth and financial stability, CBO expects the Federal Reserve to hold the target range for the federal funds rate at 0.25 percent to 0.5 percent until the fourth quarter of 2016. (The federal funds rate is the interest rate that financial institutions charge one another for overnight loans of their monetary reserves.) CBO anticipates that the central bank will gradually reduce the extent to which monetary policy supports economic growth, and, as a result, the federal funds rate will rise to 1.8 percent in the fourth quarter of 2018 and average 3.1 percent during the 2021–2026 period.

Interest rates on federal borrowing will also increase gradually over the next few years, CBO projects, as slack in the economy continues to diminish, inflation returns to the Federal Reserve's 2 percent target, and the federal funds rate rises. For example, CBO projects that the interest rate on 10-year Treasury notes will be 1.9 percent in the fourth quarter of 2016, rise to 3.4 percent in the fourth quarter of 2020, and average 3.6 percent over the 2021–2026 period. That projected rise in interest rates reflects the expectation that both foreign and domestic economic growth will improve, which should result in higher interest rates abroad as well as in the United States. In addition, CBO expects the "term premium"—the extra return paid to bondholders for risk associated with holding long-term Treasury securities—to increase from historically low levels. In CBO's estimation, the term premium has remained low, in part, because of low foreign interest rates, heightened concern about global economic growth, and increased demand for Treasury securities as a hedge against possible adverse economic outcomes.

Although CBO projects that interest rates will rise above those currently in effect, they would still be lower than the average rates during the 25-year period that preceded the most recent recession for several reasons: slower growth in the labor force, slightly slower growth in productivity, and only partial dissipation of the factors that have held down the term premium and increased the demand for Treasury securities.

### The Labor Market

According to CBO's estimates, the growth in output will heighten demand for labor over the next year and a half, leading to solid employment gains and eliminating labor market slack in 2017, thereby putting upward pressure on wages. The agency projects that the unemployment rate will fall below the estimated natural rate of unemployment (the rate that arises from all sources except fluctuations in the overall demand for goods and services), bottoming out at 4.5 percent in the fourth quarter of 2017. In CBO's projections for later years, which are primarily based on long-term trends, the unemployment rate rises to 4.9 percent.

The increases in employment and wages in the near term are expected to mitigate an otherwise prevailing decline in participation in the labor force—both by encouraging people who were out of the labor force because of weak job prospects to enter it and by encouraging people who were considering leaving the labor force to remain in it. As a result, CBO anticipates that over the next year and a half, the rate of labor force participation will change little from the 62.7 percent that it was in the second quarter of this year. (The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are at least 16 years old and are either working or seeking work.) It is projected to decline by roughly 2½ percentage points through 2026.

The prevailing decline in the labor force participation rate reflects underlying demographic trends and, to a smaller degree, federal policies. More specifically, the factors that contribute to that decline include the continued retirement of baby boomers, reduced participation by less-skilled workers, and the lingering effects of the recession and weak recovery. In addition, certain aspects of federal laws, including provisions of the Affordable Care Act and the structure of the tax code, will reduce participation in the labor force by reducing people's incentive to work or seek work.

### Inflation

CBO expects that the diminishing slack in the economy, along with higher prices for crude oil, will put upward pressure on prices for goods and services. That upward pressure will be somewhat alleviated by the effects of a strong dollar in relation to other currencies. This year,

CBO projects, the rate of inflation in the price index for personal consumption expenditures will rise to 1.5 percent from 0.5 percent in 2015. In 2017, the rate of inflation is projected to rise to the Federal Reserve's longer-run goal of 2.0 percent; in CBO's projections, it remains at that rate throughout the coming decade.

## GDP and Interest Rates Are Now Projected to Be Lower Than CBO Estimated in January

CBO's current economic projections differ in two important respects from those the agency made in January 2016. First, potential and actual real GDP are lower: By 2026, those measures are 1.6 percent lower than CBO previously projected. Second, interest rates are significantly lower than CBO projected in January. By 2026, short-term rates are 0.4 percentage points lower, and long-term rates are 0.5 percentage points lower. Other changes to CBO's projections are more modest.

CBO now projects slower growth in real GDP for 2016, largely because growth during the first half of the year was weaker than previously anticipated. Downward revisions to potential and actual GDP over the decade were made on the basis of new data and a reassessment of projected growth in the labor force and in potential total factor productivity in the nonfarm business sector. (Total factor productivity is the average real output per unit of combined labor and capital services.)

The weak growth so far this year, coupled with uncertainty about the effects of the United Kingdom's vote to leave the European Union, leads CBO to anticipate that the Federal Reserve will raise the federal funds rate more slowly than was projected in January. As a result of that revision, and because of lower projected interest rates abroad, CBO has revised downward its projections for the interest rates on 3-month Treasury bills and 10-year Treasury notes over the next several years. The downward revision to interest rates over the rest of the decade primarily reflects greater expected demand for Treasury securities.

CHAPTER

# 1

# The Budget Outlook

The Congressional Budget Office estimates that the federal budget deficit in fiscal year 2016 will total $590 billion, or 3.2 percent of gross domestic product (GDP), up from 2.5 percent in 2015. This year's deficit will mark the first increase in the budget shortfall, measured as a share of the nation's output, since 2009 (see Figure 1-1). As a result, debt held by the public is expected to increase to almost 77 percent of GDP at the end of 2016—about 3 percentage points higher than last year's amount and the highest ratio since 1950.

The deficit projected for this year is $56 billion above the estimate that CBO published in March, primarily because receipts from individual and corporate income taxes have been lower than anticipated.[1] The agency also has reduced its baseline projection of the cumulative deficit for the 2017–2026 period by $712 billion—from $9.3 trillion to $8.6 trillion. The projected deficit for 2017 is larger, but those projected for every year between 2018 and 2026 are smaller.

Revenues in CBO's baseline over the 10-year period are $431 billion (or 1 percent) below the amount that CBO previously reported, in large part because of lower projected nominal GDP. However, projected outlays decline by a larger amount—$1.1 trillion (or 2 percent)—mainly because CBO anticipates lower interest rates and thus smaller interest payments than it did in March. Despite the reduction in projected deficits, debt held by the public at the end of 2026 remains at about the same percentage of GDP, largely because CBO has reduced its estimate of economic output in that year.

As specified in law, CBO constructs its baseline projections of federal revenues and spending under the assumption that current laws will generally remain unchanged. Under that assumption, annual budget shortfalls in CBO's baseline rise substantially over the 2017–2026 period—from a low of $520 billion in 2018 to $1.2 trillion in 2026.[2] That increase is projected to occur mainly because growth in revenues would be outpaced by a combination of significant growth in spending on health care and retirement programs—caused by the aging of the population and rising health care costs per person—and growing interest payments on federal debt.

Deficits are projected to dip from 3.1 percent of GDP in 2017 to 2.6 percent in 2018 and then to begin rising again, reaching 4.6 percent at the end of the 10-year period—significantly above the average deficit as a percentage of GDP between 1966 and 2015. Over the next 10 years, revenues and outlays alike are projected to be above their 50-year averages as measured relative to GDP (see Figure 1-2).

In CBO's current baseline projections, federal debt held by the public as a percentage of GDP grows in nearly every year, reaching 86 percent by 2026. By comparison, federal debt has averaged 39 percent of GDP over the past five decades. Beyond 2026, if current laws remained in place, the pressures that contribute to rising deficits during the coming decade would accelerate and push debt up sharply relative to GDP.[3]

Such high and rising debt would have serious consequences, both for the economy and for the federal budget. Federal spending on interest payments would increase substantially as a result of increases in interest rates, such as those projected to occur over the next few years. Moreover, because federal borrowing reduces national saving over time, the nation's capital stock ultimately would be smaller, and productivity and income would be lower than would be the case if the debt was smaller. In addition,

1. See Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384.

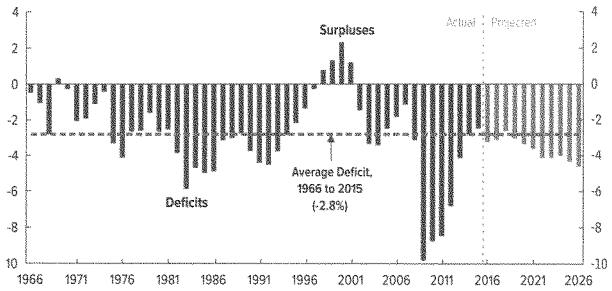
2. CBO's updated baseline projections incorporate the effects of legislation and administrative actions through July 15, 2016.

3. For a more detailed discussion, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), www.cbo.gov/publication/51580.

Figure 1-1.

**Total Deficits and Surpluses**

Percentage of Gross Domestic Product




As a percentage of gross domestic product, deficits exceed the 50-year average for most of the 2016–2026 projection period as mandatory spending and interest payments rise faster than revenues.

Source: Congressional Budget Office.

lawmakers would have less flexibility than otherwise to respond to unexpected challenges, such as significant economic downturns or financial crises. Finally, the likelihood of a fiscal crisis in the United States would increase. Specifically, the risk would rise of investors' becoming unwilling to finance the government's borrowing unless they were compensated with very high interest rates. If that occurred, interest rates on federal debt would rise suddenly and sharply relative to rates of return on other assets.

## The Budget Outlook for 2016

In the absence of additional legislation that would affect spending or revenues, the deficit in fiscal year 2016 will be $590 billion, $152 billion more than the shortfall recorded in 2015, CBO estimates (see Table 1-1). Part of that increase is attributable to a shift of certain payments from fiscal year 2017 into fiscal year 2016 (because October 1, 2016, falls on a weekend). Without that shift, CBO estimates, the deficit would amount to $549 billion in 2016. (For more details about timing shifts in the baseline, see Box 1-1 on page 13.)

Even after adjusting for the shift in payments, CBO anticipates an increase in the budget shortfall for 2016. Revenues, which rose by almost 8 percent last year, are expected to increase by about 1 percent in 2016—significantly less than the increase in outlays, which are anticipated to grow by nearly 4 percent this year (after adjusting for the timing shifts). As a percentage of GDP, the deficit will increase in 2016 to 3.2 percent, CBO estimates, exceeding last year's deficit of 2.5 percent as well as the 2.8 percent average recorded over the past 50 years; if not for the timing shifts, the deficit would be 3.0 percent of GDP.

### Outlays in 2016

Outlays are expected to increase by $178 billion this year to a total of $3.9 trillion. CBO projects that federal spending will equal 21.1 percent of GDP, which is above both last year's 20.7 percent and the 20.2 percent average over the past 50 years. If not for the shift of some payments, outlays in 2016 would increase by $137 billion and would equal 20.8 percent of GDP, CBO estimates, slightly above last year's percentage.

Growth in outlays for 2016 is driven by an increase in mandatory spending (above the rate of growth of the economy) and higher interest payments; discretionary outlays are projected to rise only slightly from last year's total. Specifically, adjusted for the shift in timing:

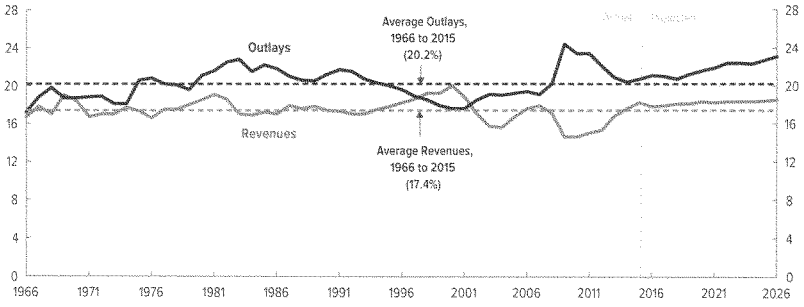
- Mandatory spending is estimated to rise by about 4 percent in nominal terms in 2016, increasing to 13.1 percent of GDP (compared with 12.9 percent in 2015).[4]

4. Mandatory spending is governed by statutory criteria and is not normally controlled by the annual appropriation process.

Figure 1-2.

**Total Revenues and Outlays**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

- Discretionary spending is projected to increase by 1 percent this year but fall to 6.4 percent of GDP (compared with 6.6 percent last year).[5]

- Net interest spending is expected to rise by about 11 percent, increasing to 1.4 percent of GDP (compared with 1.3 percent in 2015).

**Mandatory Spending.** Outlays for mandatory programs will rise to $2.4 trillion this year, CBO estimates, an increase of $139 billion from 2015 (see Table 1-2 on page 16). Without the shift in the timing of some payments, mandatory spending would grow by $102 billion. Most mandatory spending is for the federal government's major health care programs and Social Security. Those health care programs consist of Medicare, Medicaid, and the Children's Health Insurance Program, along with federal subsidies for health insurance purchased through the marketplaces established by the Affordable Care Act (ACA) and related spending.[6] The largest increases in net outlays, compared with spending in 2015, are attributable to growth in the major health care programs and Social Security, as well as a decrease in receipts from the auction of licenses to use the electromagnetic spectrum (the proceeds of those auctions are recorded as reductions in mandatory outlays). Those increases in outlays will be partially offset by lower spending for higher education.

*Major Health Care Programs.* Federal spending for the major health care programs will jump by $77 billion (or about 8 percent) in 2016, CBO estimates. That amount overstates underlying growth in those programs, however, because it reflects a $22 billion shift in the timing of certain Medicare payments from 2017 into 2016. After adjusting for the payment shift, CBO anticipates that spending for the major health care programs will rise by $55 billion (or about 6 percent) in 2016. Medicare accounts for more than half of that increase: Outlays for the program (net of premiums and other offsetting receipts) are expected to grow by $30 billion (or 6 percent) this year, largely because of increased spending per person, particularly for prescription drugs. Spending for such drugs is projected to increase by roughly 15 percent this year, after adjustments for timing shifts and reconciliation payments.[7] Much of that increase stems from spending for people whose out-of-pocket costs for prescription drugs exceed the catastrophic limit on out-of-pocket spending.

5. Discretionary spending is controlled by annual appropriation acts that specify the amounts that are to be provided for a broad array of government activities—including, for example, defense, law enforcement, and transportation.

6. For a more detailed discussion of federal health care subsidies, see Congressional Budget Office, *Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2016 to 2026* (March 2016), www.cbo.gov/publication/51385.

7. Reconciliation payments are adjustments typically made two years after initial disbursements were made for certain elements of the prescription drug program.

Table 1-1.

## CBO's Baseline Budget Projections, by Category

| | Actual, 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | In Billions of Dollars | | | | | | | |
| **Revenues** | | | | | | | | | | | | | | |
| Individual income taxes | 1,541 | 1,553 | 1,667 | 1,780 | 1,877 | 1,968 | 2,069 | 2,172 | 2,277 | 2,390 | 2,511 | 2,637 | 9,362 | 21,348 |
| Payroll taxes | 1,065 | 1,114 | 1,149 | 1,188 | 1,228 | 1,267 | 1,315 | 1,364 | 1,414 | 1,465 | 1,521 | 1,579 | 6,147 | 13,490 |
| Corporate income taxes | 344 | 300 | 321 | 337 | 352 | 381 | 374 | 378 | 385 | 396 | 410 | 427 | 1,765 | 3,761 |
| Other | 300 | 309 | 284 | 295 | 289 | 284 | 289 | 299 | 310 | 323 | 336 | 350 | 1,442 | 3,059 |
| **Total** | **3,250** | **3,276** | **3,421** | **3,600** | **3,745** | **3,900** | **4,048** | **4,212** | **4,385** | **4,574** | **4,779** | **4,993** | **18,714** | **41,658** |
| On-budget | 2,480 | 2,466 | 2,587 | 2,735 | 2,854 | 2,982 | 3,099 | 3,230 | 3,368 | 3,521 | 3,689 | 3,863 | 14,257 | 31,928 |
| Off-budget[a] | 770 | 810 | 835 | 864 | 891 | 918 | 949 | 983 | 1,017 | 1,053 | 1,090 | 1,129 | 4,457 | 9,730 |
| **Outlays** | | | | | | | | | | | | | | |
| Mandatory | 2,297 | 2,437 | 2,538 | 2,614 | 2,798 | 2,961 | 3,123 | 3,353 | 3,479 | 3,604 | 3,851 | 4,095 | 14,033 | 32,415 |
| Discretionary | 1,168 | 1,181 | 1,207 | 1,205 | 1,223 | 1,248 | 1,275 | 1,306 | 1,332 | 1,358 | 1,396 | 1,428 | 6,157 | 12,977 |
| Net interest | 223 | 248 | 270 | 301 | 350 | 405 | 456 | 507 | 562 | 612 | 661 | 712 | 1,783 | 4,838 |
| **Total** | **3,688** | **3,866** | **4,015** | **4,120** | **4,370** | **4,614** | **4,853** | **5,166** | **5,373** | **5,574** | **5,908** | **6,235** | **21,973** | **50,229** |
| On-budget | 2,945 | 3,087 | 3,203 | 3,253 | 3,442 | 3,620 | 3,789 | 4,027 | 4,155 | 4,274 | 4,520 | 4,755 | 17,306 | 39,038 |
| Off-budget[a] | 743 | 779 | 813 | 866 | 928 | 994 | 1,065 | 1,139 | 1,218 | 1,301 | 1,387 | 1,480 | 4,666 | 11,192 |
| **Deficit (-) or Surplus** | -438 | -590 | -594 | -520 | -625 | -714 | -806 | -954 | -988 | -1,000 | -1,128 | -1,243 | -3,258 | -8,571 |
| On-budget | -466 | -621 | -616 | -518 | -588 | -637 | -690 | -797 | -787 | -753 | -831 | -892 | -3,049 | -7,109 |
| Off-budget[a] | 27 | 31 | 22 | -2 | -37 | -77 | -116 | -156 | -201 | -247 | -297 | -351 | -209 | -1,462 |
| Debt Held by the Public | 13,117 | 14,073 | 14,743 | 15,325 | 16,001 | 16,758 | 17,597 | 18,584 | 19,608 | 20,649 | 21,824 | 23,118 | n.a. | n.a. |
| **Memorandum:** | | | | | | | | | | | | | | |
| Gross Domestic Product | 17,810 | 18,367 | 19,102 | 19,895 | 20,637 | 21,372 | 22,193 | 23,075 | 24,001 | 24,967 | 25,977 | 27,027 | 103,198 | 228,245 |
| | | | | | | | As a Percentage of Gross Domestic Product | | | | | | | |
| **Revenues** | | | | | | | | | | | | | | |
| Individual income taxes | 8.7 | 8.5 | 8.7 | 8.9 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 | 9.1 | 9.4 |
| Payroll taxes | 6.0 | 6.1 | 6.0 | 6.0 | 5.9 | 5.9 | 5.9 | 5.9 | 5.9 | 5.9 | 5.9 | 5.8 | 6.0 | 5.9 |
| Corporate income taxes | 1.9 | 1.6 | 1.7 | 1.7 | 1.7 | 1.8 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.7 | 1.6 |
| Other | 1.7 | 1.7 | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.3 |
| **Total** | **18.2** | **17.8** | **17.9** | **18.1** | **18.1** | **18.2** | **18.2** | **18.3** | **18.3** | **18.3** | **18.4** | **18.5** | **18.1** | **18.3** |
| On-budget | 13.9 | 13.4 | 13.5 | 13.7 | 13.8 | 14.0 | 14.0 | 14.0 | 14.0 | 14.1 | 14.2 | 14.3 | 13.8 | 14.0 |
| Off-budget[a] | 4.3 | 4.4 | 4.4 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 4.2 | 4.2 | 4.2 | 4.2 | 4.3 | 4.3 |
| **Outlays** | | | | | | | | | | | | | | |
| Mandatory | 12.9 | 13.3 | 13.3 | 13.1 | 13.6 | 13.9 | 14.1 | 14.5 | 14.5 | 14.4 | 14.8 | 15.2 | 13.6 | 14.2 |
| Discretionary | 6.6 | 6.4 | 6.3 | 6.1 | 5.9 | 5.8 | 5.7 | 5.7 | 5.5 | 5.4 | 5.4 | 5.3 | 6.0 | 5.7 |
| Net interest | 1.3 | 1.4 | 1.4 | 1.5 | 1.7 | 1.9 | 2.1 | 2.2 | 2.3 | 2.5 | 2.5 | 2.6 | 1.7 | 2.1 |
| **Total** | **20.7** | **21.1** | **21.0** | **20.7** | **21.2** | **21.6** | **21.9** | **22.4** | **22.4** | **22.3** | **22.7** | **23.1** | **21.3** | **22.0** |
| On-budget | 16.5 | 16.8 | 16.8 | 16.4 | 16.7 | 16.9 | 17.1 | 17.5 | 17.3 | 17.1 | 17.4 | 17.6 | 16.8 | 17.1 |
| Off-budget[a] | 4.2 | 4.2 | 4.3 | 4.4 | 4.5 | 4.7 | 4.8 | 4.9 | 5.1 | 5.2 | 5.3 | 5.5 | 4.5 | 4.9 |
| **Deficit (-) or Surplus** | **-2.5** | **-3.2** | **-3.1** | **-2.6** | **-3.0** | **-3.3** | **-3.6** | **-4.1** | **-4.1** | **-4.0** | **-4.3** | **-4.6** | **-3.2** | **-3.8** |
| On-budget | -2.6 | -3.4 | -3.2 | -2.6 | -2.8 | -3.0 | -3.1 | -3.5 | -3.3 | -3.0 | -3.2 | -3.3 | -3.0 | -3.1 |
| Off-budget[a] | 0.2 | 0.2 | 0.1 | * | -0.2 | -0.4 | -0.5 | -0.7 | -0.8 | -1.0 | -1.1 | -1.3 | -0.2 | -0.6 |
| Debt Held by the Public | 73.6 | 76.6 | 77.2 | 77.0 | 77.5 | 78.4 | 79.3 | 80.5 | 81.7 | 82.7 | 84.0 | 85.5 | n.a. | n.a. |

Source: Congressional Budget Office.

n.a. = not applicable; * = between -0.05 percent and zero.

a. The revenues and outlays of the Social Security trust funds and the net cash flow of the Postal Service are classified as off-budget.

**Box 1-1.**

## Shifts in the Timing of Certain Payments in CBO's Baseline

The pattern of deficits projected in the Congressional Budget Office's baseline is significantly affected by shifts in the timing of certain payments. When October 1 (the first day of the fiscal year) falls on a weekend, a number of payments that are due on that day are instead made at the end of September, thus shifting into the previous fiscal year. Because October 1 falls on a weekend in calendar years 2016, 2017, 2022, and 2023, those shifts noticeably boost projected outlays—and thus the deficit—in fiscal years 2016 and 2022 but reduce them in fiscal years 2018 and 2024 (see the table). If not for those timing shifts—as well as two other shifts unrelated to those October 1 payments—the deficit would be smaller by $41 billion this year, smaller by $4 billion in 2017, and larger by $45 billion in 2018.[1] The magnitude of the shifts is greater over the 2022–2024 period as projected spending for the affected programs rises.

### Mandatory Spending

All told, shifts in the timing of payments will boost mandatory outlays by $37 billion in 2016 and reduce them by $41 billion in 2018. The largest shift involves payments to private insurance plans that deliver medical benefits and outpatient prescription drugs for beneficiaries enrolled in the Medicare Advantage and Part D programs. The shift in those payments will increase Medicare outlays by $22 billion in 2016 and decrease them by $24 billion in 2018.

**Payments That Are Shifted in CBO's Baseline**

Billions of Dollars

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Revenues** | **0** | * | * | **0** | **6** | **-6** | **0** | **0** | **0** | **0** | **0** |
| **Outlays** | | | | | | | | | | | |
| Mandatory | | | | | | | | | | | |
| Medicare | 22 | 3 | -24 | 0 | 0 | 0 | 41 | 3 | -44 | 0 | 0 |
| Veterans' benefits | 7 | 1 | -8 | 0 | 0 | 0 | 9 | 1 | -9 | 0 | 0 |
| Military retirement | 4 | * | -4 | 0 | 0 | 0 | 5 | * | -5 | 0 | 0 |
| Supplemental Security Income | 4 | * | -5 | 0 | 0 | 0 | 5 | * | -5 | 0 | 0 |
| Outer Continental Shelf | 0 | * | * | 0 | 0 | 0 | 0 | * | * | 0 | 0 |
| Subtotal | 37 | 4 | -41 | 0 | 0 | 0 | 60 | 5 | -65 | 0 | 0 |
| Discretionary | 4 | * | -4 | 0 | 0 | 0 | 5 | * | -5 | 0 | 0 |
| **Total** | **41** | **4** | **-45** | **0** | **0** | **0** | **64** | **5** | **-70** | **0** | **0** |
| **Increase (-) or Decrease in the Deficit** | -41 | -4 | 45 | 0 | 6 | -6 | -64 | -5 | 70 | 0 | 0 |
| **Memorandum:** | | | | | | | | | | | |
| Deficit | | | | | | | | | | | |
| In billions of dollars | | | | | | | | | | | |
| Baseline | -590 | -594 | -520 | -625 | -714 | -806 | -954 | -988 | -1,000 | -1,128 | -1,243 |
| Baseline adjusted for timing shifts | -549 | -590 | -565 | -625 | -720 | -800 | -889 | -983 | -1,070 | -1,128 | -1,243 |
| As a percentage of GDP | | | | | | | | | | | |
| Baseline | -3.2 | -3.1 | -2.6 | -3.0 | -3.3 | -3.6 | -4.1 | -4.1 | -4.0 | -4.3 | -4.6 |
| Baseline adjusted for timing shifts | -3.0 | -3.1 | -2.8 | -3.0 | -3.4 | -3.6 | -3.9 | -4.1 | -4.3 | -4.3 | -4.6 |

Source: Congressional Budget Office.

GDP = gross domestic product; * = between -$500 million and $500 million.

1. Although 12 benefit checks will be issued in fiscal year 2017, total outlays in that year will still be affected by shifts in the timing of those payments. The payments due on October 1, 2016, will be shifted from fiscal year 2017 into 2016, and the payments due on October 1, 2017, will be shifted from fiscal year 2018 into 2017. Because the payments shifted into 2017 will be larger than the payments shifted out of that year, outlays in 2017 will be boosted, on net, by $4 billion.

Continued

Similar shifts in the timing of payments for certain veterans' benefits, military retirement, and Supplemental Security Income will increase mandatory outlays by an additional $15 billion this year and reduce them by $16 billion in 2018.

Lastly, royalty payments owed to the federal government stemming from the extraction of minerals from federally owned lands are due on the last day of each month. (Such payments are recorded as offsetting receipts in the budget.) When September 30 falls on a weekend—as it will in 2017 and 2023—those payments are instead made at the beginning of October, thus shifting into the following fiscal year. As a result, outlays will be boosted by $0.3 billion in 2017 and reduced by the same amount in 2018.

**Discretionary Spending**

As with the mandatory benefit programs described above, pay for active-duty and reserve military personnel is shifted into the prior fiscal year when October 1 falls on a weekend. As a result, defense outlays will be boosted by $4 billion in 2016 and reduced by a similar amount in 2018.

**Revenues**

CBO's projections of corporate income taxes are also affected by shifts in the timing of payments. Corporate payments of estimated taxes are due four times per year. However, for corporations with assets exceeding $1 billion, two laws enacted in recent years related to trade preference programs (Public Laws 112-163 and 114-27) required a small portion of their estimated payments that would otherwise have been due in the fourth quarter of calendar years 2017 and 2020 to instead be made one quarter early, thereby shifting them into the previous fiscal year. As a result of those shifts, revenues under current law will be higher in 2017 (by an estimated $0.2 billion) and 2020 (by an estimated $6 billion), and lower by those amounts in 2018 and 2021.

Medicaid outlays are expected to climb by $15 billion (or 4 percent) this year; that rate of growth is roughly one-quarter of the increase recorded in 2015, in part because the optional expansion of coverage authorized by the ACA has been in place for two years and the rapid growth in enrollment that occurred during the initial stage of the expansion has begun to moderate. In total, CBO anticipates that Medicaid enrollment will be roughly flat in 2016 (compared with an estimated 5.5 percent increase in 2015).

Outlays for the Children's Health Insurance Program will increase by $5 billion in 2016, to $14 billion, CBO estimates. That growth stems almost entirely from an increase in the rate at which the federal government matches states' payments; that increase went into effect at the beginning of the fiscal year.

Outlays for subsidies that help eligible people purchase health insurance through marketplaces, as well as related spending, will total $43 billion in 2016, CBO estimates—an increase of $5 billion. That growth largely reflects an increase in the number of people who are estimated to have purchased subsidized coverage through the marketplaces (on average, 9 million in calendar year 2016, compared with 8 million in calendar year 2015) and an increase in premiums for such coverage.

*Social Security.* CBO estimates that outlays for Social Security benefits will climb by $28 billion, or 3 percent, this year. That percentage increase is about a percentage point below the rate of growth in 2015, primarily because there was no cost-of-living adjustment for beneficiaries in January 2016.

*Spectrum Auctions.* Net receipts from the 2015 auction of licenses to use a portion of the electromagnetic spectrum will total $9 billion in 2016; that auction brought in $30 billion in 2015. Those lower receipts have the effect of boosting outlays in 2016 by $21 billion relative to the total in the previous year.

*Higher Education.* Although mandatory outlays for higher education totaled $22 billion in 2015, they are expected to be just $5 billion this year. Those outlays include subsidy costs for federal student loans issued in the current year, revisions to the subsidy costs for loans made in previous years, and mandatory spending for the Federal Pell Grant Program. This year, the Department of Education has recorded a revision to the subsidy costs for past loans that resulted in a $7 billion increase in outlays; the 2015 revision was larger, increasing outlays by $18 billion.

That difference accounted for most of the drop in mandatory outlays for higher education this year.[8] In addition, CBO estimates that mandatory outlays for Pell grants will fall by $4 billion in 2016.[9]

**Discretionary Spending.** CBO anticipates that outlays from annual appropriations will total nearly $1.2 trillion in 2016—$13 billion more than last year (see Table 1-3 on page 18). Although defense outlays will fall slightly (their fifth consecutive year of decline), nondefense discretionary outlays will increase for the third consecutive year, more than offsetting the decline in defense spending.

Defense outlays, which amounted to $583 billion in 2015, will fall by $4 billion, to $579 billion, according to CBO's calculations. If not for the shift in the payment date for military pay, outlays would total $575 billion, a decline of about 1 percent. Most of that change will result from a reduction in spending designated for overseas contingency operations (war-related activities, primarily in Afghanistan). Such spending will decrease by roughly $5 billion this year, CBO estimates. All told, defense outlays in 2016 are expected to be 18 percent less (in nominal dollars) than they were at their peak in 2011; roughly 70 percent of that decline will stem from lower spending for military operations in Afghanistan and Iraq.

CBO expects that nondefense discretionary outlays will increase by $18 billion (or 3 percent) in 2016, to $602 billion. A lower negative subsidy rate for mortgage guarantees by the Federal Housing Administration accounts for $5 billion of that increase in outlays.[10] Because such receipts are recorded as reductions in discretionary outlays, the decline in receipts will cause overall spending for nondefense programs to rise. In addition, discretionary outlays for Pell grants will climb by $3 billion this year, CBO estimates.[11] The remaining growth in nondefense discretionary outlays is the result of a number of relatively small increases in spending for various programs. In total, nondefense outlays in 2016 will be about 9 percent less than their peak in 2010.

**Net Interest.** Outlays in this category consist of the government's interest payments on debt held by the public minus interest income the government receives. In 2016, such outlays will rise to $248 billion, from $223 billion last year, CBO estimates. The increase stems primarily from adjustments to the principal of inflation-protected securities.[12] (Those adjustments are made monthly to account for inflation and recorded as outlays for interest; they are based on the consumer price index for all urban consumers.) The continued accumulation of debt also contributes to the increase in outlays for net interest.

### Revenues in 2016

On the basis of tax collections through July 2016, CBO expects federal revenues to total $3.3 trillion this fiscal year, $26 billion (or about 1 percent) more than in 2015. CBO anticipates that revenues will decline from 18.2 percent of GDP in 2015 to 17.8 percent in 2016, closer to the 17.4 percent average over the past 50 years.

**Individual Income Taxes.** CBO estimates that collections of individual income taxes will increase by $13 billion (or about 1 percent) in 2016. Specifically, CBO expects that taxes withheld from paychecks will rise by $30 billion (or 2 percent), most likely because of growth in wages and salaries. Offsetting that rise are higher refunds of $14 billion and lower nonwithheld payments of $3 billion. The sources of that $18 billion decrease in revenues will become clearer as tax return data become available over the next two years.

8. Under the Federal Credit Reform Act, a program's subsidy costs are calculated by subtracting the present value of the government's projected receipts from the present value of its projected payments. The estimated subsidy costs can be increased or decreased in subsequent years to reflect updated assessments of the payments and receipts associated with the program. Present value is a single number that expresses a flow of current and future income (or payments) in terms of an equivalent lump sum received (or paid) today. The present value depends on the rate of interest (the discount rate) that is used to translate future cash flows into current dollars.

9. Most of the Pell grant program is funded through discretionary appropriations; such outlays are anticipated to rise by $3 billion this year. All told, spending for Pell grants—including both mandatory and discretionary outlays—will dip by $1 billion in 2016, CBO estimates, primarily because of a drop in the number of students receiving such grants.

10. A negative subsidy indicates that, for budgetary purposes, the transactions are recorded as generating net income for the government.

11. However, mandatory spending for Pell grants will fall by $4 billion in 2016.

12. At the end of July, there were $1.2 trillion of Treasury inflation-protected securities outstanding.

Table 1-2.

## Mandatory Outlays Projected in CBO's Baseline

Billions of Dollars

| | Actual, 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Social Security | | | | | | | | | | | | | | |
| Old-Age and Survivors Insurance | 738 | 766 | 799 | 849 | 906 | 967 | 1,030 | 1,097 | 1,167 | 1,240 | 1,317 | 1,397 | 4,552 | 10,769 |
| Disability Insurance | 144 | 144 | 145 | 150 | 155 | 161 | 169 | 177 | 185 | 194 | 202 | 212 | 781 | 1,752 |
| Subtotal | 882 | 910 | 944 | 999 | 1,061 | 1,128 | 1,199 | 1,274 | 1,352 | 1,434 | 1,520 | 1,609 | 5,333 | 12,521 |
| Major Health Care Programs | | | | | | | | | | | | | | |
| Medicare[a] | 634 | 696 | 708 | 716 | 790 | 848 | 910 | 1,017 | 1,048 | 1,076 | 1,194 | 1,289 | 3,972 | 9,596 |
| Medicaid | 350 | 365 | 393 | 415 | 437 | 459 | 483 | 508 | 534 | 562 | 591 | 621 | 2,186 | 5,001 |
| Health insurance subsidies and related spending[b] | 38 | 43 | 54 | 67 | 76 | 81 | 86 | 89 | 93 | 97 | 100 | 103 | 365 | 847 |
| Children's Health Insurance Program | 9 | 14 | 14 | 12 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 43 | 71 |
| Subtotal[a] | 1,031 | 1,118 | 1,169 | 1,210 | 1,309 | 1,394 | 1,484 | 1,619 | 1,681 | 1,740 | 1,890 | 2,019 | 6,565 | 15,515 |
| Income Security Programs | | | | | | | | | | | | | | |
| Earned income, child, and other tax credits[c] | 85 | 84 | 86 | 87 | 89 | 89 | 89 | 91 | 93 | 96 | 98 | 100 | 440 | 918 |
| Supplemental Nutrition Assistance Program | 76 | 74 | 71 | 70 | 70 | 69 | 69 | 69 | 69 | 69 | 70 | 71 | 349 | 697 |
| Supplemental Security Income | 55 | 59 | 56 | 53 | 59 | 61 | 62 | 69 | 66 | 63 | 70 | 72 | 290 | 629 |
| Unemployment compensation | 32 | 34 | 32 | 34 | 38 | 43 | 45 | 47 | 49 | 51 | 53 | 56 | 193 | 448 |
| Family support and foster care[d] | 31 | 31 | 32 | 32 | 33 | 33 | 33 | 34 | 34 | 35 | 35 | 35 | 164 | 337 |
| Child nutrition | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 32 | 33 | 34 | 129 | 287 |
| Subtotal | 300 | 304 | 300 | 301 | 314 | 321 | 327 | 339 | 342 | 345 | 359 | 368 | 1,564 | 3,317 |
| Federal Civilian and Military Retirement | | | | | | | | | | | | | | |
| Civilian[a] | 97 | 98 | 100 | 104 | 107 | 110 | 114 | 118 | 122 | 126 | 130 | 134 | 535 | 1,165 |
| Military | 57 | 62 | 58 | 55 | 61 | 63 | 64 | 71 | 68 | 64 | 72 | 73 | 301 | 650 |
| Other | 7 | 4 | 5 | 5 | 5 | 5 | 6 | 7 | 8 | 9 | 5 | 11 | 27 | 66 |
| Subtotal | 161 | 164 | 164 | 164 | 173 | 179 | 185 | 196 | 197 | 199 | 206 | 219 | 864 | 1,881 |
| Veterans' Programs | | | | | | | | | | | | | | |
| Income security[f] | 76 | 89 | 87 | 84 | 95 | 98 | 102 | 114 | 110 | 104 | 117 | 121 | 466 | 1,032 |
| Other[g] | 16 | 20 | 21 | 18 | 17 | 18 | 18 | 20 | 21 | 21 | 23 | 24 | 92 | 201 |
| Subtotal | 92 | 109 | 108 | 102 | 112 | 116 | 120 | 134 | 130 | 125 | 140 | 145 | 558 | 1,233 |
| Other Programs | | | | | | | | | | | | | | |
| Agriculture | 13 | 14 | 19 | 19 | 16 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 84 | 160 |
| Deposit insurance | -13 | -12 | -11 | -13 | -10 | -11 | -11 | -11 | -12 | -13 | -14 | -15 | -56 | -121 |
| MERHCF | 10 | 10 | 10 | 11 | 11 | 12 | 13 | 13 | 14 | 14 | 15 | 16 | 57 | 130 |
| Fannie Mae and Freddie Mac[h] | 0 | 0 | 3 | 2 | 1 | 1 | * | 1 | 1 | 1 | 1 | 2 | 7 | 12 |
| Higher education | 22 | 5 | -7 | -4 | -2 | * | 1 | 1 | 1 | 1 | 1 | * | -13 | -9 |
| Other | 56 | 51 | 73 | 75 | 73 | 72 | 69 | 67 | 67 | 66 | 65 | 69 | 362 | 695 |
| Subtotal | 88 | 67 | 86 | 90 | 89 | 89 | 87 | 86 | 85 | 84 | 84 | 87 | 441 | 867 |

Continued

**Payroll Taxes.** CBO expects that receipts from payroll taxes—which primarily fund Social Security and Medicare's Hospital Insurance program—will increase by $49 billion (or about 5 percent) this year, largely from increases in withheld taxes for Social Security and Medicare that stem from rising wages and salaries. The expected increase in withheld payroll taxes exceeds that for withheld individual income taxes; however, the amounts currently recorded for those two sources are allocations of total withholding made on the basis of estimates by the Department of the Treasury. When actual tax return data for 2016 become available, the department may reallocate the 2016 receipts from those two sources by adjusting the amounts recorded for 2017 (or some subsequent year). Taken together, receipts from withheld individual income and payroll taxes are expected to rise by 4 percent in 2016.

Billions of Dollars

| | Actual, 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsetting Receipts | | | | | | | | | | | | | | |
| Medicare[a] | -94 | -104 | -115 | -124 | -131 | -142 | -151 | -164 | -173 | -182 | -198 | -215 | -662 | -1,595 |
| Federal share of federal employees' retirement | | | | | | | | | | | | | | |
| Social Security | -16 | -16 | -17 | -17 | -18 | -19 | -19 | -20 | -20 | -21 | -22 | -22 | -90 | -195 |
| Military retirement | -20 | -19 | -18 | -18 | -18 | -18 | -19 | -19 | -20 | -20 | -20 | -21 | -91 | -191 |
| Civil service retirement and other | -32 | -34 | -34 | -35 | -36 | -37 | -38 | -39 | -41 | -42 | -43 | -44 | -181 | -390 |
| Subtotal | -68 | -69 | -69 | -70 | -72 | -74 | -76 | -78 | -80 | -83 | -85 | -87 | -362 | -775 |
| Fannie Mae and Freddie Mac[b] | -23 | -14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Receipts related to natural resources | -11 | -8 | -9 | -12 | -12 | -12 | -12 | -12 | -13 | -14 | -14 | -15 | -57 | -125 |
| MERHCF | -7 | -7 | -7 | -8 | -8 | -9 | -9 | -10 | -10 | -11 | -11 | -12 | -41 | -94 |
| Other | -55 | -33 | -34 | -38 | -38 | -30 | -30 | -31 | -32 | -33 | -40 | -25 | -169 | -330 |
| Subtotal | -258 | -235 | -234 | -251 | -261 | -266 | -279 | -296 | -308 | -323 | -347 | -353 | -1,292 | -2,918 |
| **Total Mandatory Outlays** | **2,297** | **2,437** | **2,538** | **2,614** | **2,798** | **2,961** | **3,123** | **3,353** | **3,479** | **3,604** | **3,851** | **4,095** | **14,033** | **32,415** |
| **Memorandum:** | | | | | | | | | | | | | | |
| Mandatory Spending Excluding the Effects of Offsetting Receipts | 2,555 | 2,672 | 2,772 | 2,865 | 3,059 | 3,227 | 3,402 | 3,648 | 3,787 | 3,927 | 4,198 | 4,448 | 15,325 | 35,333 |
| Spending for Medicare Net of Offsetting Receipts | 540 | 592 | 593 | 592 | 659 | 707 | 759 | 852 | 875 | 894 | 996 | 1,074 | 3,310 | 8,001 |
| Spending for Major Health Care Programs Net of Offsetting Receipts[j] | 937 | 1,013 | 1,054 | 1,086 | 1,178 | 1,252 | 1,332 | 1,455 | 1,508 | 1,558 | 1,692 | 1,805 | 5,903 | 13,921 |

Source: Congressional Budget Office.

Data on spending for benefit programs in this table generally exclude administrative costs, which are discretionary.

MERHCF = The Department of Defense's Medicare-Eligible Retiree Health Care Fund (including TRICARE for Life); * = between -$500 million and $500 million.

a. Gross spending, excluding the effects of Medicare premiums and other offsetting receipts. (Net Medicare spending is included in the memorandum section of the table.)

b. Spending to subsidize health insurance purchased in the marketplaces established by the Affordable Care Act and provided through the Basic Health Program and spending to stabilize premiums for health insurance purchased by individuals and small employers.

c. Includes outlays for the American Opportunity Tax Credit and other credits.

d. Includes the Temporary Assistance for Needy Families program, the Child Support Enforcement program, the Child Care Entitlement program, and other programs that benefit children.

e. Includes benefits for retirement programs in the civil service, foreign service, and Coast Guard; benefits for smaller retirement programs; and annuitants' health care benefits.

f. Includes veterans' compensation, pensions, and life insurance programs.

g. Primarily education subsidies; the costs of veterans' health care are classified as discretionary spending and thus are not shown in this table.

h. The cash payments from Fannie Mae and Freddie Mac to the U.S. Treasury are recorded as offsetting receipts in 2015 and 2016. Beginning in 2017, CBO's estimates reflect the net lifetime costs—that is, the subsidy costs adjusted for market risk—of the guarantees that those entities will issue and of the loans that they will hold. CBO counts those costs as federal outlays in the year of issuance.

i. Includes premium payments, recoveries of overpayments made to providers, and amounts paid by states from savings on Medicaid's prescription drug costs.

j. Consists of spending on Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

Table 1-3.

## Discretionary Spending Projected in CBO's Baseline

Billions of Dollars

| | Actual, 2015[a] | 2016[a] | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Budget Authority | | | | | | | | | | | | | | |
| Defense | 586 | 607 | 611 | 610 | 624 | 639 | 655 | 671 | 687 | 704 | 721 | 739 | 3,139 | 6,661 |
| Nondefense | 530 | 560 | 543 | 540 | 554 | 568 | 581 | 595 | 610 | 625 | 641 | 657 | 2,787 | 5,916 |
| **Total** | **1,116** | **1,167** | **1,154** | **1,150** | **1,178** | **1,208** | **1,236** | **1,266** | **1,297** | **1,329** | **1,362** | **1,396** | **5,926** | **12,577** |
| Outlays | | | | | | | | | | | | | | |
| Defense | 583 | 579 | 592 | 593 | 609 | 623 | 637 | 657 | 668 | 680 | 701 | 719 | 3,055 | 6,480 |
| Nondefense | 585 | 602 | 615 | 612 | 614 | 625 | 637 | 649 | 663 | 678 | 694 | 710 | 3,102 | 6,497 |
| **Total** | **1,168** | **1,181** | **1,207** | **1,205** | **1,223** | **1,248** | **1,275** | **1,306** | **1,332** | **1,358** | **1,396** | **1,428** | **6,157** | **12,977** |
| **Memorandum:** | | | | | | | | | | | | | | |
| Caps in the Budget Control Act (As Amended), Including Automatic Reductions to the Caps | | | | | | | | | | | | | | |
| Defense | 521 | 548 | 551 | 549 | 562 | 576 | 590 | n.a. | n.a. | n.a. | n.a. | n.a. | 2,828 | n.a. |
| Nondefense | 492 | 518 | 519 | 515 | 529 | 542 | 555 | n.a. | n.a. | n.a. | n.a. | n.a. | 2,660 | n.a. |
| Total | 1,014 | 1,067 | 1,070 | 1,064 | 1,091 | 1,118 | 1,145 | n.a. | n.a. | n.a. | n.a. | n.a. | 5,489 | n.a. |
| Adjustments to the Caps[b] | | | | | | | | | | | | | | |
| Defense | 65 | 59 | 60 | 61 | 62 | 63 | 65 | n.a. | n.a. | n.a. | n.a. | n.a. | 311 | n.a. |
| Nondefense | 23 | 24 | 25 | 25 | 25 | 26 | 26 | n.a. | n.a. | n.a. | n.a. | n.a. | 127 | n.a. |
| Total | 87 | 83 | 85 | 86 | 87 | 89 | 91 | n.a. | n.a. | n.a. | n.a. | n.a. | 437 | n.a. |

Source: Congressional Budget Office.

CBO's baseline projections incorporate the assumption that the caps on discretionary budget authority and the automatic enforcement procedures specified in the Budget Control Act of 2011 (as amended) remain in effect through 2021.

Nondefense discretionary outlays are usually higher than budget authority because of spending from the Highway Trust Fund and the Airport and Airway Trust Fund that is subject to obligation limitations set in appropriation acts. The budget authority for such programs is provided in authorizing legislation and is not considered discretionary.

n.a. = not applicable.

a. The amount of budget authority for 2015 and 2016 in CBO's baseline does not match the sum of the spending caps plus adjustments to the caps mostly because changes to mandatory programs included in the appropriation acts for those years were credited against the caps. In CBO's baseline, those changes (which reduced mandatory budget authority) appear in their normal mandatory accounts.

b. Funding for overseas contingency operations, emergencies, disaster relief, and certain program integrity initiatives (which identify and reduce overpayments in some benefit programs) is generally not constrained by the statutory caps established by the Budget Control Act.

**Corporate Income Taxes.** Income tax payments by corporations, net of refunds, are expected to decrease by $44 billion (or 13 percent) in 2016. Such payments declined in most of the first 10 months of the fiscal year, compared with the same period a year ago, and that trend is expected to continue in September, when a significant amount of estimated payments are due. At least some of the decline in receipts probably stems from the enactment in December 2015 of the Consolidated Appropriations Act, 2016 (Public Law 114-113), which extended—retroactively and prospectively—tax rules that allow businesses with large amounts of investment to accelerate their deductions for those investments. Since that law's enactment, businesses know that those tax rules will be in effect for all of 2016; as a result, many are making smaller payments of estimated taxes in 2016 than they made in 2015, when the rules had temporarily expired.

However, the drop in 2016 is greater than can be explained by currently available data on business activity.

The specific reasons will become clearer as detailed information from corporate income tax returns about taxable profits becomes available over the next two years. The decrease may in part reflect taxable profits in 2015 and 2016 that are smaller than would be expected given other economic indicators.

**Other Revenues.** CBO expects that other revenues will increase, on net, by $9 billion (or 3 percent) in 2016. Most of that increase stems from remittances by the Federal Reserve, which are expected to increase by $19 billion (or 19 percent), largely because the Fixing America's Surface Transportation Act (P.L. 114-94) required the Federal Reserve to remit most of its surplus account to the Treasury. The central bank remitted that additional amount ($19 billion) in late December.[13] All other receipts, which had been boosted in 2015 by unusually large civil monetary penalties paid by financial institutions, are expected to decrease by $10 billion, on net.

## CBO's Baseline Budget Projections for 2017 Through 2026

CBO's baseline projections are not a forecast of future outcomes. They are constructed in accordance with provisions of the Congressional Budget and Impoundment Control Act of 1974 and the Balanced Budget and Emergency Deficit Control Act of 1985. As those laws specify, CBO constructs its baseline projections under the assumption that current laws governing taxes and spending will generally remain unchanged; the projections can therefore serve as a benchmark for measuring potential changes in law.

Under that assumption, CBO projects, the budget deficit would fall over the next two years—from 3.2 percent of GDP in 2016 to 3.1 percent in 2017 and to 2.6 percent in 2018. That pattern of declining deficits over the next two years is mostly attributable to shifts in the timing of certain payments; without those shifts, the deficit would total 3.0 percent of GDP in 2016 and 3.1 percent in 2017, before dipping to 2.8 percent in 2018.[14] Beginning in 2019, deficits would be on an upward trend, reaching 4.6 percent of GDP by the end of the projection period. That deficit in 2026 would be 1.4 percentage points larger (or 1.6 percentage points larger, adjusted for the shift in timing) than the shortfall in 2016. Specifically:

- Outlays for Social Security and the major health care programs would be higher by 2.2 percent of GDP (or 2.3 percent, adjusted for the shift in timing).
- Net interest costs would be greater by 1.3 percent of GDP.
- Other spending would be lower by 1.4 percent of GDP (or 1.3 percent, adjusted for the shift in timing).
- Revenues would be higher by 0.6 percent of GDP.

As a result of the growing deficits, debt held by the public increases in CBO's baseline, climbing from 77 percent of GDP in 2016 to 86 percent in 2026.

Even if federal laws did not change over the next decade, however, actual budgetary outcomes almost certainly would differ from CBO's baseline projections, perhaps significantly, because of unanticipated changes in economic conditions and other factors that affect federal spending and revenues. CBO's projections of outlays and revenues depend on the agency's economic projections for the coming decade—including forecasts for such variables as interest rates, inflation, and GDP—as well as myriad technical factors. Discrepancies between those economic and technical projections and actual outcomes can result in significant deviations from baseline projections of revenues and outlays. For example, if interest rates were 1 percentage point higher each year from 2017 through 2026 and if all other economic variables were unchanged, cumulative deficits projected for the 10-year period would be about $1.6 trillion higher, mostly as a result of larger interest payments on Treasury debt.[15]

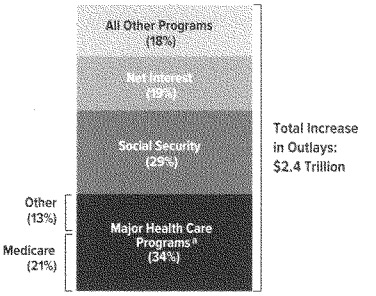
13. Such transfers have no practical effect on the government's fiscal condition because the Federal Reserve would have remitted its earnings on such funds to the Treasury anyway; whether those amounts are held by the Treasury or by the Federal Reserve has no economic significance. See Congressional Budget Office, letter to the Honorable Tom Price concerning a revision to the CBO cost estimate for the Surface Transportation Reauthorization and Reform Act of 2015 transmitted on November 17, 2015 (November 19, 2015), pp. 3–4, www.cbo.gov/publication/51015.

14. The drop in 2018 results from several factors, including the following: Receipts from individual income taxes rise faster than GDP; a tax on health insurers is scheduled to be reinstated; and caps on budget authority for discretionary programs are scheduled to be lower in that year than in 2017.

15. For further discussion, see Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), Appendix B, www.cbo.gov/publication/51129.

Figure 1-3.

**Components of the Total Increase in Outlays in CBO's Baseline Between 2016 and 2026**




Source: Congressional Budget Office.

Because October 1, 2016, falls on a weekend, certain payments that are due on that day will instead be made at the end of September, thus shifting into fiscal year 2016. The data shown here are adjusted for the effects of those shifts.

a. Consists of spending on Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

## Outlays From 2017 Through 2026

Under current law, total outlays are projected to hover around 21 percent of GDP through 2019, rise to 22 percent the following year, and then remain at that level for several years before reaching 23 percent at the end of the projection period. In nominal terms, outlays would grow, on net, by $2.4 trillion between 2016 and 2026, CBO estimates—an average annual increase of 5 percent. Three major components of the budget—the major health care programs, Social Security, and net interest—account for 82 percent of the total increase in outlays (see Figure 1-3). That percentage reflects adjustments to eliminate the effects of shifts in the timing of certain payments.

**Mandatory Spending.** CBO's projections for mandatory programs reflect the estimated effects of economic factors, caseload growth, and other influences that affect the cost of those programs. The projections also incorporate a set of across-the-board reductions (known as sequestration) that are required under current law for spending on certain mandatory programs.

Mandatory spending (net of offsetting receipts, which are recorded as reductions in outlays) is projected to increase from $2.4 trillion in 2016 to $4.1 trillion in 2026, an average yearly increase of 5.5 percent. That spending is projected to equal 13.3 percent of GDP in 2017 and 2018 (adjusted for timing shifts) and then to rise each year through the end of the projection period, reaching 15.2 percent of GDP in 2026. By comparison, the highest percentage for mandatory spending in any year since 1962 (the earliest year for which such data have been reported) was 14.5 percent in 2009, the only year such outlays have exceeded 14.0 percent of GDP.

*Social Security and the Major Health Care Programs.* Outlays for Social Security and the major health care programs—particularly Medicare—drive much of the growth in mandatory spending. CBO estimates that spending for those programs, net of offsetting receipts, will grow at an average annual rate of 6.0 percent over the next 10 years and will increase from 10.4 percent of GDP in 2016 to 12.6 percent in 2026. (That percentage in 2016 and the following discussion reflect adjustments to eliminate the effects of shifts in the timing of certain payments.) Specifically, in CBO's current baseline:

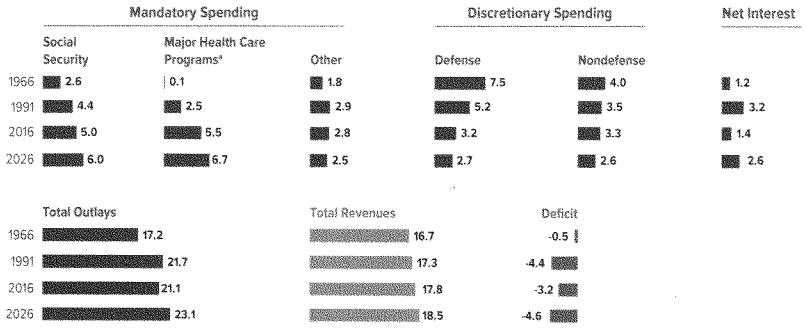
- Outlays for Social Security total 4.9 percent of GDP in 2017 and then rise steadily thereafter, reaching 6.0 percent of GDP in 2026 (see Figure 1-4).
- Outlays for Medicare remain at 3.1 percent of GDP through 2018 and then increase each year through 2026, when they total 4.0 percent.
- Federal outlays for Medicaid are stable relative to GDP for the next 10 years, totaling about 2 percent in each year.
- Spending on subsidies for health insurance purchased through marketplaces, along with related spending, is also stable relative to GDP over the projection period, totaling 0.4 percent in most years through 2026.

Most of the growth in spending for those programs (particularly Social Security and Medicare) results from the aging of the population. The number of people age 65 or older is now more than twice what it was 50 years ago. Over the next decade, as members of the baby-boom generation age and as life expectancy continues to increase, that number is expected to rise by more than one-third, boosting the number of beneficiaries of those

Figure 1-4.

**Spending and Revenues Projected in CBO's Baseline, Compared With Actual Values in 1966 and 1991**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

a. Consists of spending on Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

programs (see Figure 1-5). As a result, projected spending for people age 65 or older in three large programs—Social Security, Medicare, and Medicaid—increases from roughly one-third of all federal noninterest spending in 2016 to about 40 percent in 2026.

Growth in health care spending per enrollee also contributes to the increase in mandatory spending (and in federal spending as a whole). Although health care spending grew more slowly in the past several years than it has historically, CBO projects that spending per enrollee in federal health care programs will grow more rapidly over the coming decade than it has in recent years.

The government also collects taxes dedicated to Social Security and Medicare; however, outlays (net of premiums and other offsetting receipts) for those two programs exceed those revenues. On net, the contribution of those two programs to the federal deficit would rise from 2.0 percent of GDP in 2017 to an average of 3.5 percent over the 2022–2026 period (see Table 1-4).

*Other Mandatory Programs.* Aside from spending on Social Security and the major health care programs, all other mandatory spending is projected to decline as a share of GDP, falling from 2.8 percent in 2017 to 2.5 percent in 2026. That category includes spending on income support programs (such as unemployment compensation and the Supplemental Nutrition Assistance Program), military and civilian retirement programs, most veterans' benefits, and major agriculture programs. That projected decline occurs in part because benefit levels for many of those programs are adjusted for inflation each year, and inflation in CBO's economic forecast is estimated to be well below the rate of growth in nominal GDP.

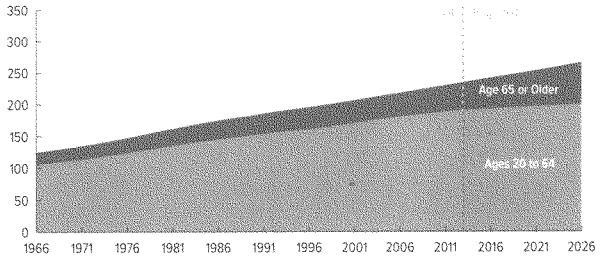
**Discretionary Spending.** An array of federal activities is funded or controlled through annual appropriations. Such discretionary spending includes most defense spending as well as outlays for highway programs, elementary and secondary education, housing assistance, international affairs, and the administration of justice, for example. In total, discretionary spending is projected to increase from $1.2 trillion in 2016 to $1.4 trillion in 2026, which would be an average yearly increase of 2 percent. Measured as a share of GDP, however, discretionary outlays are projected to drop from 6.4 percent in 2016 to 5.3 percent in 2026, which would be the smallest percentage in any year since 1962 (the earliest year for which such data have been reported); by comparison, over the past 50 years, discretionary outlays have averaged 8.7 percent of GDP.

Through 2021, CBO's baseline incorporates the caps on budget authority for discretionary programs established

Figure 1-5.

**Population, by Age Group**

Millions of People




The number of people age 65 or older in the United States—now more than twice what it was 50 years ago—is expected to grow by more than a third over the next 10 years. Thus, enrollment in Social Security's Old-Age and Survivors Insurance program and Medicare will continue to rise in the future.

Source: Congressional Budget Office.

This figure shows actual data through calendar year 2013, the most recent year for which such data are available.

by the Budget Control Act of 2011; in later years, the baseline reflects the assumption that such funding keeps pace with inflation.[16] Some elements of discretionary funding are not constrained by the caps—the appropriations designated for overseas contingency operations, activities designated as emergency requirements, disaster relief (up to certain limits), and certain efforts to reduce overpayments in benefit programs. For those elements, funding is assumed to grow with inflation from the amounts provided in 2016.[17]

For 2017, the cap on discretionary budget authority for defense programs is $3 billion higher than for 2016, and the cap for nondefense programs is largely unchanged. However, the year-to-year changes projected in the baseline are different:

- Discretionary budget authority for nondefense programs declines by $17 billion in 2017 primarily because, for 2016, some reductions in mandatory budget authority were included in appropriation legislation to help keep funding within limits set by the caps. (When such reductions in mandatory programs are included in appropriation acts, the savings are credited against the discretionary funding provided in those acts.) CBO's baseline for discretionary programs for 2017 does not include such changes to mandatory programs (because no such changes have been enacted for 2017), so adhering to the caps would require providing less discretionary budget authority in that year than in 2016 (unless similar changes to mandatory programs are legislated again in the appropriation process).
- Budget authority for defense programs is $4 billion greater in 2017 than in 2016 because the cap is slightly higher and because funding for overseas contingency operations is assumed to grow from this year's amount at the rate of inflation.

In 2018, CBO estimates, the caps will decline by a total of $5 billion (or about 0.5 percent) relative to 2017 amounts.[18] (That estimate incorporates the automatic reductions required by law and excludes adjustments for overseas contingency operations and other activities not constrained by the caps.)

16. Budget authority is the authority provided by law to incur financial obligations that will result in immediate or future outlays of federal government funds.

17. Spending for certain transportation programs is controlled by obligation limitations, which also are not constrained by the caps on discretionary spending.

18. The Bipartisan Budget Act of 2015 canceled the automatic reductions in discretionary spending for 2017 imposed by the Budget Control Act and set new caps for that year that are, in total, $30 billion above what the limits would have been if the automatic spending reductions had occurred. (That law also made changes to the caps for 2016.) No adjustments have been made to the caps and automatic reductions in place for 2018 through 2021.

**Table 1-4.**

## Key Projections in CBO's Baseline

Percentage of Gross Domestic Product

| | | | Projected Annual Average | |
|---|---|---|---|---|
| | 2016 | 2017 | 2018–2021 | 2022–2026 |
| Revenues | | | | |
| Individual income taxes | 8.5 | 8.7 | 9.1 | 9.6 |
| Payroll taxes | 6.1 | 6.0 | 5.9 | 5.9 |
| Corporate income taxes | 1.6 | 1.7 | 1.7 | 1.6 |
| Other | 1.7 | 1.5 | 1.4 | 1.3 |
| **Total Revenues** | 17.8 | 17.9 | 18.2 | 18.3 |
| Outlays | | | | |
| Mandatory | | | | |
| Social Security | 5.0 | 4.9 | 5.2 | 5.7 |
| Major health care programs[a] | 5.5 | 5.5 | 5.8 | 6.4 |
| Other | 2.8 | 2.8 | 2.7 | 2.5 |
| Subtotal | 13.3 | 13.3 | 13.7 | 14.7 |
| Discretionary | 6.4 | 6.3 | 5.9 | 5.5 |
| Net interest | 1.4 | 1.4 | 1.8 | 2.4 |
| **Total Outlays** | 21.1 | 21.0 | 21.4 | 22.6 |
| **Deficit** | -3.2 | -3.1 | -3.2 | -4.2 |
| **Debt Held by the Public at the End of the Period** | 76.6 | 77.2 | 79.3 | 85.5 |
| **Memorandum:** | | | | |
| Social Security | | | | |
| Revenues[b] | 4.6 | 4.6 | 4.5 | 4.5 |
| Outlays[c] | 5.0 | 4.9 | 5.2 | 5.7 |
| Contribution to the Federal Deficit[d] | -0.4 | -0.4 | -0.7 | -1.3 |
| Medicare | | | | |
| Revenues[b] | 1.5 | 1.5 | 1.5 | 1.5 |
| Outlays[c] | 3.8 | 3.7 | 3.9 | 4.5 |
| Offsetting receipts | -0.6 | -0.6 | -0.7 | -0.7 |
| Contribution to the Federal Deficit[d] | -1.8 | -1.6 | -1.7 | -2.2 |

Source: Congressional Budget Office.

This table satisfies a requirement specified in section 3111 of S. Con. Res. 11, the Concurrent Resolution on the Budget for Fiscal Year 2016.

a. Consists of spending on Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

b. Includes payroll taxes other than those paid by the federal government (which are intergovernmental transactions). Also includes income taxes paid on Social Security benefits, which are credited to the trust funds.

c. Does not include outlays related to administration of the program, which are discretionary. For Social Security, outlays do not include intergovernmental offsetting receipts stemming from payroll taxes paid by federal government employers to the Social Security trust funds.

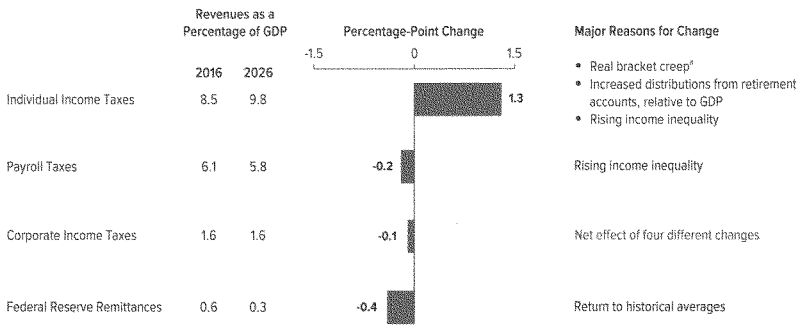
d. The net increase in the deficit shown in this table differs from the changes in the trust fund balance for the associated programs. It does not include intergovernmental transactions, interest earned on balances, and outlays related to administration of the programs.

Discretionary budget authority after 2018 would rise by about 2 percent a year, on average, reflecting the rate of increase in the caps prescribed in the Budget Control Act and under the assumption that such budget authority grows with inflation after the caps expire in 2021.

Under those assumptions, total discretionary outlays in CBO's baseline (adjusted for the shifts in the timing of certain payments) grow by 2.5 percent in 2017 and by 0.2 percent in 2018 and then keep pace with the projected 2 percent annual increase in budget authority.

**Figure 1-6.**

**Major Changes in Projected Revenues From 2016 to 2026**




Source: Congressional Budget Office.

GDP = gross domestic product.

a. Real bracket creep occurs when more income is pushed into higher tax brackets because people's income is rising faster than inflation.

**Net Interest.** Rising interest rates and growing federal debt are projected to boost outlays for net interest significantly. In the baseline, they nearly triple, rising from $248 billion (or 1.4 percent of GDP) in 2016 to $712 billion (or 2.6 percent of GDP) in 2026—which would be the largest ratio since 1998.

Nearly all of the projected increase in the government's borrowing costs is attributable to rising interest rates. During the coming decade, economic conditions are expected to improve, and the Federal Reserve is expected to gradually reduce support for economic growth. As a result, CBO anticipates that interest rates on Treasury securities will rise noticeably over the next several years from their current, unusually low, levels. CBO estimates that the interest rate on 3-month Treasury bills will rise from 0.4 percent in the last quarter of 2016 to 2.8 percent by the end of 2020 and will remain there through 2026. The rate on 10-year Treasury notes is projected to rise from 1.9 percent at the end of 2016 to 3.6 percent at the end of 2021 and to remain there through 2026. (For further discussion, see Chapter 2.) The remainder of the increase in net interest costs occurs mainly because of interest payments on the greater amount of debt held by the public that would accrue over the next decade as a result of the projected deficits.

## Revenues From 2017 Through 2026

In CBO's baseline, total revenues rise from 17.8 percent of GDP this year to 18.5 percent in 2026. That growth mainly reflects an increase in revenues relative to GDP from individual income taxes that is partially offset by decreases in remittances from the Federal Reserve and, to a lesser extent, by decreases in payroll tax receipts relative to GDP (see Figure 1-6). The largest movements over the next decade in sources of revenues are the following:

- Individual income tax receipts are projected to increase relative to GDP in each year from 2017 to 2026 because of real bracket creep (the process in which, as real income rises, an ever-larger proportion becomes subject to higher tax rates), rising distributions from tax-deferred retirement accounts, an expected increase in the share of wages and salaries earned by higher-income taxpayers, and other factors.

- Remittances to the Treasury from the Federal Reserve—which have been very large since 2010 because of changes in the size and composition of the central bank's portfolio—decline to more typical levels.

- Payroll tax receipts are projected to decrease slightly relative to GDP over the next decade, primarily as a result of an expected continued increase in the share of wages earned by higher-income taxpayers; that increase will cause a greater share of wages to be above the maximum amount subject to Social Security payroll taxes. (That amount, which is indexed to growth in average earnings for all workers, is $118,500 in calendar year 2016.) The resulting reduction in payroll taxes offsets about three-fifths of the expected increase in individual income tax receipts that is projected to occur for the same reason.

- Corporate income tax receipts are estimated to remain relatively stable relative to GDP over the next decade—rising slightly through 2020 and then declining slightly through 2026.

All told, CBO estimates, under current law revenues would grow over the projection period by $1.7 trillion—an average annual increase of 4.3 percent. That rate is slower than the 5.0 percent rate of increase CBO projects for outlays (after adjusting for the timing of certain payments).

**Individual Income Taxes.** If current laws remain generally unchanged, receipts from individual income taxes are expected to rise markedly relative to GDP over the next 10 years—from 8.5 percent in 2016 to 9.8 percent by 2026, which would be a greater share of GDP than has been recorded in all but one of the past 50 years. That increase relative to the size of the economy would result mainly from the aforementioned factors.

*Real Bracket Creep.* The most significant factor pushing up taxes relative to income is real bracket creep. That phenomenon occurs because the income tax brackets and exemptions under both the regular income tax and the alternative minimum tax are indexed only to inflation.[19] If income grows faster than inflation, as generally occurs when the economy is growing, more income is pushed into higher tax brackets. That factor causes projected revenues measured as a percentage of GDP to rise in CBO's baseline by 0.4 percentage points from 2016 to 2026.

19. The alternative minimum tax is similar to the regular income tax but its calculation includes fewer exemptions, deductions, and rates. People who file individual income tax returns must calculate the tax owed under each system and pay the larger of the two amounts.

*Retirement Income.* As the population ages, taxable distributions from tax-deferred retirement accounts (including individual retirement accounts, 401(k) plans, and traditional defined benefit pension plans) will tend to grow more rapidly than GDP. CBO expects the retirement of members of the baby-boom generation to cause a gradual increase in distributions from tax-deferred retirement accounts. Under current law, CBO projects, those growing taxable distributions would boost revenues relative to GDP by 0.3 percentage points over the next decade.

*Relatively Faster Growth in Earnings of Higher-Income Taxpayers.* In CBO's baseline projections, earnings from wages and salaries are expected to increase faster for higher-income people than for others during the next decade—as has been the case for the past several decades—causing a larger share of income to be subject to higher income tax rates. Over the next 10 years, CBO projects, faster growth in earnings for higher-income people would boost estimated individual income tax revenues relative to GDP by about 0.3 percentage points; that increase would be partially offset by a projected decrease in payroll tax receipts, as explained in the next section.

*Other Factors.* CBO anticipates that over the next decade, other factors would further boost individual income tax revenues by 0.3 percentage points, on net. The most significant of those remaining factors is the expectation that the unexplained weakness in recent receipts, which is beyond what can be accounted for in current economic data, would gradually dissipate over the next several years: Taxable income as a share of GDP and effective tax rates (total taxes as a percentage of total income) fluctuate from year to year but are expected to return to more historically typical levels, adjusted for the structure of tax law and longer-term trends in income and demographics.

Two other, smaller factors largely offset one another. The first factor is recently enacted legislation that extended a number of expiring tax provisions. That legislation reduced revenues by more in 2016 than in future years, boosting revenues in the 10-year projection period relative to the amount in 2016. The second factor is a projected decline in realizations of capital gains relative to the size of the economy to levels consistent with their historical average share of GDP (after accounting for differences in applicable tax rates).

**Payroll Taxes.** In CBO's baseline projections, receipts from payroll taxes gradually decline from 6.1 percent of GDP this year to 5.8 percent by 2026. The main reason

for that decline is the expectation that wages and salaries will continue to grow faster for higher-earning taxpayers than for other taxpayers, which will push an increasing share of such earnings above the maximum amount per taxpayer that is subject to Social Security taxes.

**Corporate Income Taxes.** Under current law, CBO projects, corporate income tax receipts would rise from 1.6 percent of GDP in 2016 to 1.8 percent of GDP in 2020 and then gradually decline to 1.6 percent of GDP by 2026. That pattern over the next decade is the net effect of four main factors:

- A temporary increase in receipts between 2016 and 2020 resulting from a phaseout between 2018 and 2020 of provisions that allow firms with large amounts of investment in equipment (and certain other property) to immediately deduct from their taxable income 50 percent of the costs of those investments in 2016 and 2017.

- An increase in receipts over the next few years because the weakness in tax collections in 2016, beyond that which can be explained by currently available data on business activity, is not expected to persist permanently. CBO expects that the factors that are responsible, which will not become apparent until information from tax returns becomes available over the next two years, will gradually dissipate.

- A projected decline in domestic economic profits relative to GDP. That decline is expected to occur mainly because of an increase in the growth of labor compensation and rising interest payments on businesses' debt, and because CBO projects that nonlabor income will grow less rapidly than output (reversing a trend seen since 2000).

- An expected increase in the use of certain strategies that many corporations employ to reduce their tax liabilities. One such strategy is to shift business activity from entities subject to the corporate income tax into those subject to the individual income tax.[20] Another strategy is to increase the amount of corporate income that is shifted out of the United States through a combination of methods such as setting more aggressive transfer prices, increasing the use of intercompany loans, undertaking corporate inversions, and using other techniques.[21]

**Receipts From Other Sources.** The federal government also collects revenue in the form of excise taxes, estate and gift taxes, customs duties, remittances from the Federal Reserve, and miscellaneous fees and fines. CBO projects that, under current law, revenues from all of those sources would decline from 1.7 percent of GDP this year to 1.3 percent in 2026.

Most of that decline reflects projected remittances from the Federal Reserve, which will rise in 2016 as a result of recently enacted legislation and then fall as the central bank's interest expenses increase and the size and composition of its portfolio return to more typical conditions.[22] By 2026, CBO projects, remittances from the Federal Reserve will have fallen from 0.6 percent of GDP this year (the sixth consecutive year at roughly that percentage) to 0.3 percent of GDP, just above the average over the 2001–2009 period. In recent years, the central bank has significantly expanded and changed the composition of its asset holdings, boosting its earnings and subsequent remittances to the Treasury to far above typical amounts. CBO anticipates that the size and composition of the Federal Reserve's portfolio, along with its remittances to the Treasury, will gradually decline to amounts that are more typical.

**Tax Expenditures.** The tax rules that form the basis of CBO's projections include an array of exclusions, deductions, preferential rates, and credits that reduce

20. For a detailed analysis of the taxation of business income through the individual income tax, see Congressional Budget Office, *Taxing Businesses Through the Individual Income Tax* (December 2012), www.cbo.gov/publication/43750.

21. To allocate profits among U.S. and foreign affiliates, transactions between those affiliates must be assigned a price. The price that is set is known as the transfer price. By strategically setting transfer prices, a corporation can reduce the share of total profits that it reports on U.S. tax returns. A corporate inversion refers to a process through which a U.S. corporation changes its country of tax residence, often by merging with a foreign company. Inversions reduce U.S. corporate tax revenue both because the inverted U.S. corporation no longer must pay U.S. taxes on earnings in other countries and because a corporation can shift additional income out of the United States through the use of intercompany loans and the resulting interest expenses.

22. The income produced by the various activities of the Federal Reserve System, minus the cost of generating that income and the cost of the system's operations, is remitted to the Treasury and counted as revenues in the federal budget.

Table 1-5.

**Federal Debt Projected in CBO's Baseline**

Billions of Dollars

| | Actual, 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Debt Held by the Public at the Beginning of the Year | 12,780 | 13,117 | 14,073 | 14,743 | 15,325 | 16,001 | 16,758 | 17,597 | 18,584 | 19,608 | 20,649 | 21,824 |
| Changes in Debt Held by the Public | | | | | | | | | | | | |
| Deficit | 438 | 590 | 594 | 520 | 625 | 714 | 806 | 954 | 988 | 1,000 | 1,128 | 1,243 |
| Other means of financing | -102 | 366 | 76 | 63 | 51 | 43 | 34 | 33 | 36 | 41 | 46 | 52 |
| Total | 337 | 956 | 670 | 582 | 676 | 757 | 840 | 987 | 1,024 | 1,041 | 1,174 | 1,294 |
| **Debt Held by the Public at the End of the Year** | **13,117** | **14,073** | **14,743** | **15,325** | **16,001** | **16,758** | **17,597** | **18,584** | **19,608** | **20,649** | **21,824** | **23,118** |
| **Debt Held by the Public at the End of the Year (As a percentage of GDP)** | **73.6** | **76.6** | **77.2** | **77.0** | **77.5** | **78.4** | **79.3** | **80.5** | **81.7** | **82.7** | **84.0** | **85.5** |
| **Memorandum:** | | | | | | | | | | | | |
| Debt Held by the Public Minus Financial Assets[a] | | | | | | | | | | | | |
| In billions of dollars | 11,755 | 12,543 | 13,123 | 13,627 | 14,234 | 14,929 | 15,714 | 16,646 | 17,610 | 18,587 | 19,692 | 20,911 |
| As a percentage of GDP | 66.0 | 68.3 | 68.7 | 68.5 | 69.0 | 69.9 | 70.8 | 72.1 | 73.4 | 74.4 | 75.8 | 77.4 |
| Gross Federal Debt[b] | 18,120 | 19,383 | 20,162 | 20,868 | 21,601 | 22,368 | 23,191 | 24,134 | 25,095 | 26,053 | 27,075 | 28,207 |
| Debt Subject to Limit[c] | 18,113 | 19,376 | 20,154 | 20,860 | 21,592 | 22,360 | 23,183 | 24,126 | 25,085 | 26,043 | 27,064 | 28,197 |
| Average Interest Rate on Debt Held by the Public (Percent) | 1.9 | 2.0 | 2.1 | 2.2 | 2.4 | 2.7 | 2.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.3 |

Source: Congressional Budget Office.

GDP = gross domestic product.

a. Debt held by the public minus the value of outstanding student loans and other credit transactions, cash balances, and other financial instruments.

b. Federal debt held by the public plus Treasury securities held by federal trust funds and other government accounts.

c. The amount of federal debt that is subject to the overall limit set in law. Debt subject to limit differs from gross federal debt mainly because most debt issued by agencies other than the Treasury and the Federal Financing Bank is excluded from the debt limit. That limit was most recently set at $18.4 trillion but has been suspended through March 15, 2017. On March 16, 2017, the debt limit will be raised to its previous level plus the amount of federal borrowing that occurred while the limit was suspended.

revenues for any given level of tax rates in both the individual and corporate income tax systems. Some of those provisions are called tax expenditures because, like government spending programs, they provide financial assistance for particular activities as well as to certain entities or groups of people. The tax expenditures with the largest effects on revenues are the following:

- The exclusion from workers' taxable income of employers' contributions for health care, health insurance premiums, and premiums for long-term-care insurance;
- The exclusion of contributions to and the earnings of pension funds (minus pension benefits that are included in taxable income);
- Preferential tax rates on dividends and long-term capital gains;
- The deductions for state and local taxes (on non-business income, sales, real estate, and personal property); and
- The deferral for profits earned abroad, which certain corporations may exclude from their taxable income until those profits are returned to the United States.

Tax expenditures have a substantial effect on federal revenues. On the basis of estimates prepared by the staff of the Joint Committee on Taxation (JCT), which were published before the enactment of the Consolidated Appropriations Act, 2016, and do not include numerous changes made by that law that affect tax expenditures, CBO expects that those and other tax expenditures will total almost $1.5 trillion in 2016. That amount equals about 8 percent of GDP—more than 40 percent of the revenues projected for the year. CBO estimates that if the effects of the recently enacted legislation were incorporated into the estimates, the total magnitude of tax

Table 1-6.

**Budgetary Effects of Selected Policy Alternatives Not Included in CBO's Baseline**

Billions of Dollars

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Policy Alternatives That Affect Discretionary Outlays** | | | | | | | | | | | | | |
| Increase Discretionary Appropriations at the Rate of Inflation After 2016[a] | | | | | | | | | | | | | |
| Increase (-) in the deficit[b] | 0 | -23 | -53 | -66 | -72 | -77 | -81 | -83 | -85 | -88 | -89 | -292 | -717 |
| Debt service | 0 | * | -1 | -2 | -5 | -7 | -10 | -13 | -16 | -20 | -23 | -15 | -98 |
| Freeze Discretionary Appropriations at the 2016 Amount[c] | | | | | | | | | | | | | |
| Increase (-) or decrease in the deficit[b] | 0 | -8 | -16 | -2 | 22 | 47 | 76 | 106 | 137 | 170 | 205 | 43 | 738 |
| Debt service | 0 | * | * | * | * | 1 | 3 | 6 | 10 | 15 | 21 | * | 54 |
| **Policy Alternative That Affects Both Discretionary and Mandatory Outlays** | | | | | | | | | | | | | |
| Prevent the Automatic Spending Reductions Specified in the Budget Control Act[d] | | | | | | | | | | | | | |
| Increase (-) in the deficit[b] | n.a. | -3 | -67 | -88 | -97 | -100 | -104 | -107 | -110 | -121 | -100 | -355 | -897 |
| Debt service | n.a. | * | -1 | -3 | -5 | -9 | -13 | -17 | -21 | -25 | -30 | -18 | -122 |
| **Policy Alternatives That Affect the Tax Code[e]** | | | | | | | | | | | | | |
| Extend Partial Expensing of Equipment and Property[f] | | | | | | | | | | | | | |
| At 50 percent rate | | | | | | | | | | | | | |
| Increase (-) in the deficit[b] | n.a. | n.a. | -9 | -22 | -50 | -56 | -38 | -26 | -19 | -15 | -10 | -137 | -245 |
| Debt service | n.a. | n.a. | * | * | -2 | -3 | -5 | -6 | -7 | -8 | -9 | -5 | -40 |
| At 30 percent rate | | | | | | | | | | | | | |
| Increase (-) in the deficit[b] | n.a. | n.a. | n.a. | n.a. | -29 | -42 | -27 | -18 | -13 | -10 | -7 | -71 | -145 |
| Debt service | n.a. | n.a. | n.a. | n.a. | * | -2 | -3 | -3 | -4 | -5 | -5 | -2 | -22 |
| Extend Other Expiring Tax Provisions[g] | | | | | | | | | | | | | |
| Increase (-) in the deficit[b] | n.a. | -5 | -12 | -12 | -14 | -16 | -17 | -20 | -23 | -26 | -29 | -59 | -173 |
| Debt service | n.a. | * | * | * | -1 | -1 | -2 | -3 | -4 | -4 | -6 | -3 | -21 |

Continued

expenditures in 2016 would be significantly larger, but by no more than 1 percentage point of GDP. Most of that amount arises from the 10 largest tax expenditures, which CBO estimates would total about 6 percent of GDP both in 2016 and over the 2017–2026 period.[23]

## Federal Debt From 2017 Through 2026

Taking into consideration deficits that are projected to total $8.6 trillion under current law and accounting for the government's other borrowing needs, CBO estimates that federal debt held by the public would rise from $14.1 trillion at the end of 2016 to $23.1 trillion at the end of 2026 (see Table 1-5). Federal debt would remain near 77 percent of GDP through the end of 2018, but it would rise steadily thereafter, reaching about 86 percent of GDP at the end of 2026, CBO estimates. That amount of debt relative to the size of the economy would be the greatest since 1947.

Debt held by the public consists mostly of securities issued by the Treasury to raise the cash that funds the federal government's activities and that it uses to pay off maturing liabilities. The net amount that the Treasury borrows by selling those securities (the amounts that are sold minus the amounts that have matured) is determined primarily by the size of the annual budget deficit. In addition, the Treasury borrows to finance student loans and other federal credit programs. CBO projects that such additional borrowing, often called other means of financing, would range from $33 billion to $76 billion annually between 2017 and 2026.

23. For more information on how that total was determined, see Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), pp. 101–105, www.cbo.gov/publication/51129.

Billions of Dollars

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Policy Alternatives That Affect the Tax Code[e] (Continued)** | | | | | | | | | | | | | |
| Repeal Certain Postponed or Suspended Health Taxes[h] | | | | | | | | | | | | | |
| Increase (-) in the deficit[b] | n.a. | n.a. | -14 | -16 | -20 | -24 | -27 | -30 | -34 | -38 | -43 | -74 | -246 |
| Debt service | n.a. | n.a. | * | * | -1 | -2 | -3 | -4 | -5 | -6 | -8 | -3 | -29 |
| **Memorandum:** | | | | | | | | | | | | | |
| Deficit in CBO's Baseline | -590 | -594 | -520 | -625 | -714 | -806 | -954 | -988 | -1,000 | -1,128 | -1,243 | -3,258 | -8,571 |

Sources: Congressional Budget Office; staff of the Joint Committee on Taxation.

n.a. = not applicable; * = between -$500 million and zero.

a. These estimates reflect the assumption that appropriations will not be constrained by caps set by the Budget Control Act of 2011 as amended and will instead grow at the rate of inflation from their 2016 level. Discretionary funding related to federal personnel is inflated using the employment cost index for wages and salaries; other discretionary funding is inflated using the gross domestic product price index.

b. Excludes debt service.

c. This option reflects the assumption that appropriations would generally be frozen at the 2016 level through 2026.

d. The Budget Control Act of 2011 specified that if lawmakers did not enact legislation originating from the Joint Select Committee on Deficit Reduction that would reduce projected deficits by at least $1.2 trillion, automatic procedures would go into effect to reduce both discretionary and mandatory spending during the 2013–2021 period. Those procedures are now in effect and take the form of equal cuts (in dollar terms) in funding for defense and nondefense programs. For the 2018–2021 period, the automatic procedures lower the caps on discretionary budget authority specified in the Budget Control Act (caps for 2016 and 2017 were revised by the Bipartisan Budget Act of 2015); for the 2022–2026 period, CBO has extrapolated the reductions estimated for 2021. Nonexempt mandatory programs will be reduced through sequestration; those provisions have been extended through 2025. The budgetary effects of this option cannot be combined with those of either of the other alternatives that affect discretionary spending.

e. The estimates are from CBO and the staff of the Joint Committee on Taxation and are preliminary.

f. This alternative would extend the provisions that allow businesses with large amounts of investment to expense (immediately deduct from their taxable income) a portion of the cost of their investment in equipment and certain other property. Under current law, the portion that can be expensed is 50 percent through 2017, 40 percent in 2018, and 30 percent in 2019, after which the provisions expire. One option would extend the 50 percent allowance permanently beyond 2017, and the other option would extend the 30 percent allowance permanently beyond 2019. In both cases, the alternative would include provisions that allow businesses to accelerate alternative minimum tax credits in lieu of the partial-expensing provisions. Policymakers could choose to extend the partial-expensing provisions at a percentage of either 30 percent or 50 percent, but not both; that is, the options could not be applied together and the separate budgetary estimates added together.

g. This option would extend about 50 tax provisions that are scheduled under current law to expire before 2027. It does not include an extension of the partial-expensing provisions or a repeal of certain health provisions; those effects are shown separately.

h. This option would repeal the health insurance provider tax, the medical device excise tax, and the excise tax on certain health insurance plans with high premiums. All were postponed or suspended for either one or two years in the Consolidated Appropriations Act, 2016. The component of the estimate from repealing the high-premium excise tax does not include largely offsetting effects that would result because some people who would otherwise have been enrolled in insurance through Medicaid and the exchanges would instead enroll in employment-based coverage.

Another measure of federal debt is the amount that is subject to the statutory limit on federal borrowing. In addition to debt held by the public, that amount includes debt issued to accounts of various federal agencies, such as the Social Security trust funds. (Debt issued by agencies other than the Treasury and the Federal Financing Bank is excluded from the debt limit.) Currently, there is no statutory limit on the issuance of new federal debt because the Bipartisan Budget Act of 2015 (P.L. 114-74) suspended the debt ceiling from November 2, 2015, through March 15, 2017. In the absence of any legislative action on the debt limit before the suspension ends, the amount of borrowing accumulated during that period will be added to the previous debt limit of $18.1 trillion on March 16, 2017. In CBO's baseline projections, the amount of outstanding debt subject to limit increases from $19.4 trillion at the end of 2016 to $28.2 trillion at the end of 2026. (For those projections, CBO assumes that increases in the statutory ceiling would occur as necessary.)

## Alternative Assumptions About Fiscal Policy

To illustrate the ways in which future deficits would be affected by various decisions of policymakers about federal spending programs and the federal tax system, CBO estimated the budgetary effects of several alternative policies (see Table 1-6). The discussion here focuses on the policies' direct effects on revenues and outlays, but the changes also would affect the amount of interest paid on federal debt (those costs are shown separately in the table).

### Discretionary Spending

Policymakers could vary discretionary funding from CBO's baseline amounts. For example, if appropriations grew each year at the same rate as inflation after 2016, discretionary spending would be $717 billion above the baseline amount for the 2017–2026 period. If, by contrast, lawmakers kept appropriations at the nominal 2016 amount, total discretionary outlays would be $738 billion lower over that 10-year period. Under that scenario (sometimes called a freeze in regular appropriations), total discretionary spending would fall from 6.4 percent of GDP in fiscal year 2016 to 4.5 percent in 2026.

### Automatic Spending Reductions

The Budget Control Act put in place automatic procedures to reduce discretionary and mandatory spending through 2021.Those procedures require equal reductions (in dollar terms) in defense and nondefense spending. The Bipartisan Budget Act of 2015 canceled discretionary reductions for 2016 and 2017 and instead set new caps for those years. That law also extended the required reductions to mandatory spending (by means of sequestration) through 2025. If lawmakers chose to prevent those automatic cuts each year—starting in 2017—without making other changes that reduced spending, total outlays over the 2017–2026 period would be $897 billion (or about 2 percent) higher than the amounts in CBO's baseline. Total discretionary outlays would be $768 billion (or 6 percent) higher, and outlays for mandatory programs—most of which are not subject to sequestration—would be $129 billion (or 0.4 percent) higher.[24]

24. Under that scenario, the caps for 2018 through 2021 would revert to the original limits set in the Budget Control Act. Because of interactions between the effects of different policy options, the estimated budgetary effects of this option cannot be added to the estimated budgetary effects of either of the other alternatives that affect discretionary spending.

### Revenues

A number of tax provisions are scheduled to expire over the next decade. Most have been extended several times. Most recently, the Consolidated Appropriations Act, 2016 (enacted in December 2015), made permanent some provisions that had expired or were scheduled to expire and temporarily extended others. That law also phases out the ability of businesses with large amounts of investment to expense (immediately deduct from their taxable income) qualifying equipment investment, allowing those companies to expense 50 percent of such investment through 2017, 40 percent in 2018, and 30 percent in 2019, after which the partial-expensing provisions are scheduled to expire. That law also postpones or suspends for one or two years certain taxes related to health care.

If the provision allowing for 50 percent expensing became permanent after 2017, it would reduce revenues (and increase outlays for refundable tax credits) by a total of $245 billion over the 2018–2026 period, JCT estimates. If, instead, the provision allowing for 30 percent expensing became permanent after 2019, it would reduce revenues (and increase outlays) by a total of about $145 billion from 2020 through 2026. If all other tax provisions scheduled to expire before 2027 were permanently extended, CBO and JCT estimate, revenues would be lower by $173 billion over the 2017–2026 period.

Deficits also would increase if delays in the implementation of certain taxes established by the Affordable Care Act were extended or made permanent. The Consolidated Appropriations Act, 2016, suspended for 2016 and 2017 the medical device tax that took effect in 2013, placed a moratorium for 2017 on the health insurance provider tax that took effect in 2014, and postponed for two years (to 2020) the start of the tax on high-premium health insurance plans. Permanently repealing those taxes would reduce revenues by a total of about $246 billion between 2018 and 2026, according to JCT's estimates.

## Changes in CBO's Baseline Projections Since March 2016

CBO completed its previous set of baseline projections in March 2016. Since then, the agency has increased its estimate of the deficit in 2016 by $56 billion and reduced its estimate of the cumulative deficit from 2017 through 2026 by $712 billion (see Table 1-7 and Appendix A).

Table 1-7.

**Changes in CBO's Baseline Projections of the Deficit Since March 2016**

Billions of Dollars

| | 2016 | 2017–2026 |
|---|---|---|
| Deficit in CBO's March 2016 Baseline | -534 | -9,283 |
| Changes | | |
| Economic | | |
| Revenues | -24 | -428 |
| Outlays | -4 | -1,164 |
| Increase (-) or Decrease in the Deficit From Economic Changes | -20 | 736 |
| Technical | | |
| Revenues | -63 | -4 |
| Outlays | -27 | 21 |
| Increase (-) or Decrease in the Deficit From Technical Changes | -36 | -25 |
| **Total Increase (-) or Decrease in the Deficit** | **-56** | **712** [a] |
| Deficit in CBO's August 2016 Baseline | -590 | -8,571 |
| **Memorandum:** | | |
| Changes in Revenues | -87 | -431 |
| Changes in Outlays | -31 | -1,143 |

Source: Congressional Budget Office.

a. Includes the budgetary effects of legislation that has been enacted since March. Those changes are very small in each year and total less than $1 billion over the 2017–2026 period.

## Changes for 2016

CBO now estimates that both revenues and outlays in 2016 will be lower than it projected in March, by $87 billion (or 3 percent) and $31 billion (or 1 percent), respectively. Technical updates to CBO's estimates of revenues and outlays—that is, revisions that do not stem from legislation or changes in economic projections—account for most of those changes. Revenues in 2016 will be $63 billion lower than previously estimated for technical reasons, primarily as a result of weaker-than-expected collections from individual and corporate income taxes in recent months. (The reasons for that weakness will not be clear until additional data from tax returns and other sources become available.) Partially offsetting that adjustment, CBO has reduced its estimate of outlays in 2016 by $27 billion—about half of which stems from lower estimates of discretionary spending. CBO's revised economic forecast further reduced revenues and outlays this year, by $24 billion and $4 billion, respectively.

## Changes for 2017 Through 2026

CBO has also reduced its projections of both revenues and outlays over the 10-year projection period—by $431 billion (or 1 percent) and $1,143 billion (or 2 percent), respectively—almost entirely because of updates to CBO's economic forecast.

The 10-year change in outlays is dominated by a $998 billion reduction in estimated net interest costs, primarily as a result of lower projected interest rates throughout the period. The reduction in interest rates mainly reflects CBO's reassessment of the future demand for Treasury securities in light of lower-than-anticipated interest rates in financial markets and recent global economic developments that point to less demand for foreign assets and greater demand for U.S. Treasury securities. It also reflects slower projected GDP growth in the United States and abroad. (For more details, see "Revisions to Projected Interest Rates" on page 61 in Chapter 2.)

The $428 billion reduction in projected revenues for 2017 through 2026 attributable to economic factors stems mostly from CBO's expectation that GDP and its associated taxable income—primarily wages and salaries as well as corporate profits—will grow more slowly than previously projected, largely as a result of newly released data and changes in the method CBO uses to project productivity growth.

Technical changes to outlays offset a small portion of the economic changes, increasing outlays in CBO's baseline by $21 billion over the projection period. Projected revenues decline by $4 billion for technical reasons.

Although CBO has reduced its estimate of the cumulative deficit by $712 billion since March, its estimate of debt held by the public in 2026—relative to the size of the economy—has not changed materially, remaining at 86 percent of GDP. Projected deficits over the 10-year period are noticeably lower, but CBO's forecast of nominal GDP is also lower (by $630 billion, or 2 percent, in 2026), leaving the ratio of debt to GDP largely unchanged.

CHAPTER

# 2

# The Economic Outlook

If current laws governing federal taxes and spending generally remain in place, the Congressional Budget Office estimates, the economy's real output (that is, its output adjusted to remove the effects of inflation) will expand by 2.0 percent in 2016, as measured by the change from the fourth quarter of 2015 (see Table 2-1). Real gross domestic product (GDP) rose at an annual rate of just 1.0 percent in the first half of 2016. CBO expects a stronger second half, however, mainly because major forces restraining the growth of investment in the first half—such as a decline in oil prices that reduced mining investment—have begun to wane. The 2.0 percent rate of growth that CBO anticipates for 2016 is roughly the same as the rate of growth experienced in 2015. The agency also projects that output will increase by 2.4 percent in 2017, by 2.1 percent in 2018, and slightly more slowly through 2026. (CBO's economic projections were completed in early July and therefore do not reflect recently released economic data; see Box 2-1.)

CBO projects that the economic expansion over the next two years will reduce the quantity of underused resources, or "slack," in the economy. One sign of slack at the end of 2015 was that actual GDP was about 1.8 percent smaller than CBO's estimate of potential (that is, maximum sustainable) GDP. CBO expects that gap to narrow to less than its historical average by 2018. As a result, CBO projects that the improving economy will spur further hiring, reducing the unemployment rate from 4.8 percent in the second quarter of 2016 to 4.5 percent in 2017 and putting upward pressure on workers' wages and benefits. The increases in employment and in wages and benefits will increase participation in the labor force—both encouraging people who were out of the labor force because of weak job prospects to enter it, and encouraging people who were considering leaving the labor force to remain in it.

The reduced slack in the economy will increase inflation over the next year and push up interest rates over the next few years. CBO expects the rate of inflation—as measured by the growth in the price index for personal consumption expenditures (the PCE price index)—to rise to the Federal Reserve's goal of 2 percent in 2017. CBO also expects the interest rate on 3-month Treasury bills to go up, rising from an average of 0.3 percent in the first half of 2016 to 1.0 percent by the end of 2017 and stabilizing at 2.8 percent by the end of 2020. Long-term interest rates are expected to rise as well, partly in response to the increase in short-term rates and partly in response to an expected increase in global interest rates as foreign economic growth improves. CBO projects that the rate on 10-year Treasury notes will increase from an average of 1.8 percent in the first half of 2016 to 2.5 percent by the end of 2017 and to 3.4 percent by the end of 2020.

Unlike its projections for the next few years, which reflect predictions of business cycle fluctuations, CBO's projections for the 2021–2026 period are based primarily on projections of underlying trends in such variables as the size of the labor force, the number of hours worked, capital investment, and productivity—that is, trends that those variables follow after the effects of business cycle fluctuations are removed. Real output will grow more quickly through 2026 than it has done over the past decade, CBO expects, because business investment will be stronger and because the economy's total factor productivity (TFP), the average real output per unit of combined labor and capital services, will grow more quickly. Nevertheless, slower growth in the nation's supply of labor is projected to keep the growth of output slower than it was during the 1980s, 1990s, and early 2000s. In CBO's projections, the economy grows by 2.0 percent per year, on average (as measured on a fourth-quarter-to-fourth-quarter basis), between 2021 and 2026.

Recognizing the uncertainty of economic forecasts, CBO constructs its projections so that they fall in the middle of

Table 2-1.

## CBO's Economic Projections for Calendar Years 2016 Through 2026

| | 2016 | 2017 | 2018 | Annual Average 2019–2020 | Annual Average 2021–2026 |
|---|---|---|---|---|---|
| | **Percentage Change From Fourth Quarter to Fourth Quarter** | | | | |
| Gross Domestic Product | | | | | |
| Real[a] | 2.0 | 2.4 | 2.1 | 1.7 | 2.0 |
| Nominal | 3.5 | 4.3 | 3.9 | 3.6 | 4.0 |
| Inflation | | | | | |
| PCE price index | 1.5 | 2.0 | 2.0 | 2.0 | 2.0 |
| Core PCE price index[b] | 1.8 | 1.9 | 2.0 | 2.0 | 2.0 |
| Consumer price index[c] | 1.8 | 2.3 | 2.3 | 2.4 | 2.4 |
| Core consumer price index[b] | 2.3 | 2.2 | 2.3 | 2.3 | 2.3 |
| GDP price index | 1.5 | 1.8 | 1.8 | 1.9 | 2.0 |
| Employment Cost Index[d] | 2.8 | 3.1 | 3.3 | 3.1 | 3.1 |
| | **Fourth-Quarter Level (Percent)** | | | | |
| Unemployment Rate | 4.6 | 4.5 | 4.7 | 5.0 [e] | 4.9 [f] |
| | **Percentage Change From Year to Year** | | | | |
| Gross Domestic Product | | | | | |
| Real[a] | 1.9 | 2.4 | 2.2 | 1.7 | 1.9 |
| Nominal | 3.2 | 4.2 | 4.0 | 3.6 | 4.0 |
| Inflation | | | | | |
| PCE price index | 1.2 | 1.9 | 2.0 | 2.0 | 2.0 |
| Core PCE price index[b] | 1.7 | 1.8 | 2.0 | 2.0 | 2.0 |
| Consumer price index[c] | 1.4 | 2.4 | 2.3 | 2.3 | 2.4 |
| Core consumer price index[b] | 2.3 | 2.2 | 2.3 | 2.3 | 2.3 |
| GDP price index | 1.3 | 1.8 | 1.8 | 1.9 | 2.0 |
| Employment Cost Index[d] | 2.6 | 3.0 | 3.3 | 3.2 | 3.1 |
| | **Annual Average** | | | | |
| Unemployment Rate (Percent) | 4.8 | 4.5 | 4.6 | 4.9 | 4.9 |
| Payroll Employment (Monthly change, in thousands)[g] | 175 | 123 | 24 | 25 | 64 |
| Interest Rates (Percent) | | | | | |
| Three-month Treasury bills | 0.3 | 0.7 | 1.4 | 2.4 | 2.8 |
| Ten-year Treasury notes | 1.8 | 2.3 | 2.8 | 3.2 | 3.6 |
| Tax Bases (Percentage of GDP) | | | | | |
| Wages and salaries | 44.3 | 44.4 | 44.4 | 44.4 | 44.3 |
| Domestic economic profits | 8.7 | 8.4 | 8.2 | 7.8 | 7.3 |

Source: Congressional Budget Office.

Economic projections for each year from 2016 to 2026 appear in Appendix B.

GDP = gross domestic product; PCE = personal consumption expenditures.

a. Nominal GDP adjusted to remove the effects of inflation.

b. Excludes prices for food and energy.

c. The consumer price index for all urban consumers.

d. The employment cost index for wages and salaries of workers in private industries.

e. Value for the fourth quarter of 2020.

f. Value for the fourth quarter of 2026.

g. Calculated as the monthly average of the fourth-quarter-to-fourth-quarter change in payroll employment.

Box 2-1.

## Recently Released Economic Data

In late July, the Bureau of Economic Analysis (BEA) released its annual revision of the national income and product accounts, as well as new data about economic growth during the first half of 2016. The revision incorporates new data from various sources, as well as some changes in methods and definitions.[1] The Congressional Budget Office completed its forecast before BEA released that new information, but an initial review of the revised and newly released data does not suggest any substantial change to CBO's economic or budget projections.

### Revisions to Historical Data

BEA slightly increased its estimate of the growth of real output (that is, output adjusted to remove the effects of inflation) between 2013 and 2015. It now estimates that real output grew by 2.2 percent, rather than 2.1 percent, during that period. It also estimates that national income grew 0.3 percentage points faster than it estimated previously. Two components of that income are important for forecasting revenues: corporate profits, which BEA revised downward by $4.5 billion in 2013, upward by roughly $80 billion in 2014, and upward again by roughly $80 billion in 2015; and wage and salary disbursements, which were revised upward by about $7 billion for the whole 2013–2015 period. (Most of the upward revision to income over the past three years reflected higher corporate profits, so although wages were also revised upward, their share of total income fell.) The revision left most measures of inflation—including the price index for personal consumption expenditures, the core version of that price index, and the gross domestic product (GDP) price index—largely unchanged. (The revision does not affect another measure of inflation, the consumer price index for all urban consumers or CPI-U.)

### Growth in 2016

BEA also revised its estimate of GDP for the first quarter of 2016 and released its initial estimate for the second quarter. The new data indicate that real GDP grew at an average annual rate of 1.0 percent in the first half of 2016—well below the 1.7 percent rate that CBO used in constructing its economic forecast. Most of that difference resulted from unexpected weakness in business fixed investment (that is, investment in non-residential structures, equipment, and intellectual property products) and from a sharp drop in private inventory investment.

An initial review of the new data for the first half of 2016 indicates that economic growth for the year may prove to be slightly slower than CBO projected in early July. However, because a number of factors suggest that the underlying momentum in economic activity may be stronger than the recent growth of real GDP suggests, output growth in 2016 may in fact be close to CBO's projection. For one, consumer spending during the first half of the year was slightly stronger than CBO had anticipated. Also, the latest data about the labor market suggest continued growth in employment and labor income. And inventory investment will swing back if firms find that they need to replenish their inventories to meet future demand.

### Implications for Future Years

Beyond 2016, the general contours of CBO's projections are unaffected by the revised and newly released data. For example, though the data indicate slightly faster growth in real GDP and slightly weaker growth in business investment in fixed capital during the past three years, they do not call for a significant change to CBO's estimates of potential GDP in the recent past or in the future. More will be known about how CBO might adjust those estimates when BEA releases its revised estimates of capital stock later this year.

1. See Bureau of Economic Analysis, "National Income and Product Accounts—Gross Domestic Product: Second Quarter 2016 (Advance Estimate)—Annual Update: 2013 Through First Quarter 2016" (press release, July 29, 2016), http://go.usa.gov/xTcJH (PDF, 1.9 MB).

the distribution of possible outcomes, given current law and the economic data that are available when the projections are prepared. Nevertheless, many developments—such as slower-than-expected growth in business investment, faster-than-expected growth in productivity, or weaker-than-expected economic growth abroad—could make outcomes differ substantially from what CBO has projected.

CBO's current economic projections differ in some significant respects from its last projections, which were published in January 2016. For example, CBO now projects slower growth of real GDP in 2016, largely because of the weaker-than-anticipated growth during the first half of the year. Also, the agency's projections of potential and actual GDP in 2026 are now roughly 1½ percent lower than they were in January. Those revisions were made on the basis of new data and a reassessment of future growth in TFP. In addition, CBO has reduced its projections of interest rates on Treasury securities; by 2026, those rates are roughly one-half of a percentage point lower than CBO projected in January. That revision reflects CBO's reassessment of the future demand for Treasury securities, in light of lower-than-anticipated interest rates in financial markets and recent global economic developments that point to less demand for foreign assets; it also partly reflects the revisions to projected GDP growth.

The economic projections in this report do not differ much from those of most other forecasters. They are generally similar to the *Blue Chip* consensus forecast, which was published in August, though CBO's projection of real GDP growth is higher. The agency's projections of economic activity are also generally similar to the forecasts developed by the Federal Reserve, which were presented at the Federal Open Market Committee's June 2016 meeting.

## The Economic Outlook for 2016 Through 2020

Since the end of the 2007–2009 recession, real GDP has grown faster than potential GDP, on average, reducing the gap between the two and hence the amount of slack in the economy. CBO expects that gap to keep narrowing as real GDP grows more quickly in the second half of this year and next year than it did during the first half of this year (see Figure 2-1). However, growth in real GDP is expected to slow in 2018 and to fall below but remain close to the growth of potential GDP in 2019 and 2020.

In CBO's projections, developments in the federal tax and spending policies specified in current law have a small negative effect on economic growth over the next few years, on net. By contrast, monetary policy continues to support growth over the next few years, albeit less and less so as the economy nears its potential output and the labor market tightens.

Most of the growth of output during the coming five years will be driven by consumers, businesses, and home builders, CBO anticipates. Demand from federal, state, and local governments and from foreign customers will contribute much less to economic growth.

CBO expects that slack in the labor market will nearly disappear over the next year. In the agency's projections, increased demand for workers reduces the unemployment rate and draws more workers into the labor force. Reduced slack in the labor market and the economy will help boost the rate of inflation to the Federal Reserve's target rate of 2 percent.

Unlike CBO's projections for the 2016–2018 period, those for 2019 and 2020 do not reflect expected cyclical developments in the economy. Rather, they serve as transitions to the values that CBO projects for the 2021 2026 period—which themselves are not based on predictions of business-cycle fluctuations.

### Federal Fiscal Policy

If current laws remained generally the same, changes in federal spending and revenues would modestly dampen aggregate demand for goods and services over the next few years.[1] Those changes would also slightly reduce the supply of labor in the economy. Together, the changes in aggregate demand and in the supply of labor would restrain the growth of output through 2020.

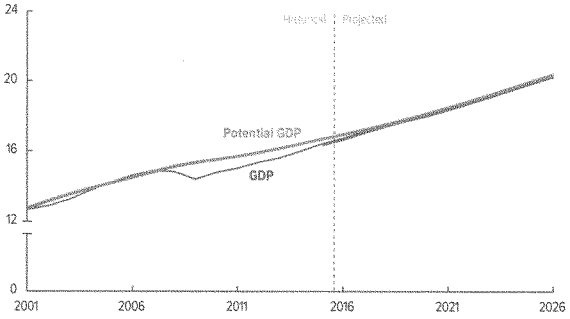
Specifically, in CBO's projections, four broad changes in federal spending and revenues that would occur under

1. Aggregate demand refers to total purchases by consumers, businesses, government, and foreigners of a country's output of final goods and services during a given period. All else being equal, changes in aggregate demand affect businesses' decisions about whether to increase production, invest in equipment, and hire workers, which in turn affect income, demand, and output.

**Figure 2-1.**

**GDP and Potential GDP**

Trillions of 2009 Dollars




In CBO's projections, the gap between the economy's actual and potential output is largely eliminated by the end of 2017 and then returns to its historical average—about one-half of one percent of potential GDP—by 2020.

Sources: Congressional Budget Office; Bureau of Economic Analysis.

Potential GDP is CBO's estimate of the maximum sustainable output of the economy.

Data are annual. Values for GDP from 2001 through 2015 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values for GDP from 2015 through 2026 (the thick line) and all values for potential GDP reflect the data available and projections made before July 29.

GDP = gross domestic product.

current law reduce growth in aggregate demand over the next five years:[2]

- Partly because of statutory caps limiting the growth of discretionary spending, the federal government's real purchases of goods and services decline, slightly reducing real GDP growth through 2018.[3] Real federal purchases provide negligible contributions to growth in 2019 and 2020.
- The phasing out of various provisions of law governing the taxation of investment spending reduces businesses' incentives to invest, tempering the growth of their investment in structures and equipment from 2018 through 2020.
- Growth in real income pushes some households into higher tax brackets, raising effective marginal tax rates—that is, tax rates on an additional dollar of income earned by those households. That effect, which is known as real bracket creep, slightly increases households' tax liabilities, reducing their disposable (that is, after-tax) income and slightly dampening the growth of consumer spending over the next few years.
- The stimulus provided by automatic stabilizers—the automatic decreases in revenues and increases in outlays that occur when the economy weakens—continues to diminish over the next few years as the economy improves.[4]

2. The effects of those changes are incorporated into CBO's projections, but the agency has not separately quantified the impact of each.

3. Discretionary spending consists of the outlays that result from budget authority provided by appropriation acts.

4. All else being equal, automatic stabilizers affect aggregate demand because they are changes in the amount of taxes that households and businesses pay and in the transfer payments that households receive. For more discussion of automatic stabilizers, see Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), Appendix C, www.cbo.gov/publication/51129; and Frank Russek and Kim Kowalewski, *How CBO Estimates Automatic Stabilizers*, Working Paper 2015-07 (Congressional Budget Office, November 2015), www.cbo.gov/publication/51005.

Fiscal policy also reduces the supply of labor in CBO's projections. The increase in effective marginal tax rates described above would reduce the incentive to work, thus diminishing the amount of labor that people choose to supply. CBO also expects elements of the Affordable Care Act, such as the phasing out of health insurance subsidies as people's income rises, to reduce the amount of labor supplied over the next few years, as people adjust their employment circumstances in response and as more people choose to participate in health insurance marketplaces.[5]

**Monetary Policy and Interest Rates**

CBO expects that as the economy improves, and as the rate of inflation approaches the Federal Reserve's longer-run goal of 2 percent, the central bank will gradually reduce the extent to which its monetary policy supports economic growth. At its December 2015 meeting, the Federal Reserve's Federal Open Market Committee began that process, raising its target range for the federal funds rate—that is, the interest rate that financial institutions charge each other for overnight loans of their monetary reserves. The range is now 0.25 percent to 0.50 percent. In light of two developments—slow domestic growth in the first half of the year, and the United Kingdom's recent vote to leave the European Union, which has exacerbated uncertainty about global economic growth and financial stability—CBO expects the target range to remain at its current level until the fourth quarter of 2016. CBO expects the federal funds rate to then rise gradually, reaching 1.1 percent in the fourth quarter of 2017 and 1.8 percent in the fourth quarter of 2018 (see Figure 2-2).

As the federal funds rate rises, interest rates on federal borrowing will also rise gradually over the next few years, CBO projects. The interest rate on 10-year Treasury notes fell from 2.2 percent in the fourth quarter of 2015 to 1.8 percent in the second quarter of 2016. That rate is projected to begin increasing in the second half of 2016, reaching 1.9 percent in the fourth quarter of 2016, 2.9 percent in the fourth quarter of 2018, and 3.4 percent in the fourth quarter of 2020.

Those projected increases reflect three factors. First, CBO anticipates that the interest rate on 3-month Treasury bills will rise (to 0.4 percent in the fourth quarter of 2016, 1.7 percent in the fourth quarter of 2018, and 2.8 percent in the fourth quarter of 2020) as the Federal Reserve gradually reduces the extent to which monetary policy supports the growth of aggregate demand.[6] Such increases in short-term rates boost longer-term rates because the latter are partly determined by investors' expectations of the former. Second, foreign economic growth is expected to improve, pushing up rates abroad and in the United States. In CBO's assessment, the interest rate on 10-year Treasury notes fell over the first half of 2016 partly because falling interest rates abroad put downward pressure on rates here; improving foreign economic growth is expected to reverse that effect.

And third, CBO expects an increase in the term premium—the extra return paid to bondholders for the added risk associated with holding long-term Treasury securities (after average expected interest rates on shorter-term securities are accounted for). Several factors have pushed the term premium on U.S. Treasury securities to historically low levels in recent years. One is limited long-term investment opportunities abroad, which may have prompted global investors to shift their holdings out of foreign bonds and into longer-term U.S. Treasury securities, keeping interest rates on those securities down. Other factors are investors' heightened concern about global economic growth and their perception that the value of long-term Treasury securities rises when growth is weak (which implies that those securities may provide a useful hedge against such risks). CBO projects that the term premium will rise over the next several years as the factors that have recently suppressed it dissipate. However, because those factors are expected to dissipate slowly, CBO expects the interest rate on 10-year notes to rise more slowly than the rate on 3-month bills and to stabilize slightly later.[7]

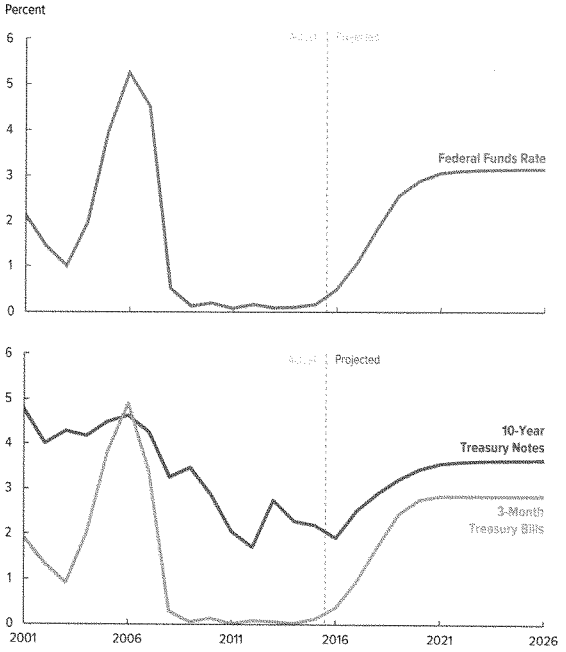
5. For more information, see Edward Harris and Shannon Mok, *How CBO Estimates the Effects of the Affordable Care Act on the Labor Market*, Working Paper 2015-09 (Congressional Budget Office, December 2015), www.cbo.gov/publication/51065.

6. CBO expects the interest rate on 3-month Treasury bills to be lower than the federal funds rate over the next 10 years, as it has generally been in the past. The reason for that historical difference is that Treasury securities are free of default risk, whereas the overnight unsecured loans made at the federal funds rate carry a small risk of default.

7. In addition, long-term rates have probably been held down by the influence of the Federal Reserve's large portfolio of long-term assets. CBO expects the size of that portfolio to gradually diminish, beginning next year; that development will put upward pressure on the term premium and the 10-year rate. CBO's expectation that the reduction in the size of the Federal Reserve's portfolio will begin later than the resumption of increases in the federal funds rate is another reason that the interest rate on 10-year Treasury notes is expected to rise more slowly than the rate on 3-month bills and to stabilize slightly later.

**Figure 2-2.**

**Interest Rates**




CBO expects the Federal Reserve to start increasing the federal funds rate on a sustained basis in December 2016.

In CBO's projections, interest rates on Treasury securities rise steadily over the next few years, reflecting continued economic improvement and increases in the federal funds rate.

Sources: Congressional Budget Office; Federal Reserve.

The federal funds rate is the interest rate that financial institutions charge each other for overnight loans of their monetary reserves.

Data are annual and are fourth-quarter values. Actual data are plotted through 2015.

Despite CBO's expectation that the 10-year rate will rise, the agency does not expect it to return to the levels seen in the two decades before the 2007–2009 recession. Several factors discussed below will probably continue to suppress interest rates throughout the 10-year projection period (see "The Economic Outlook for 2021 Through 2026" on page 51).

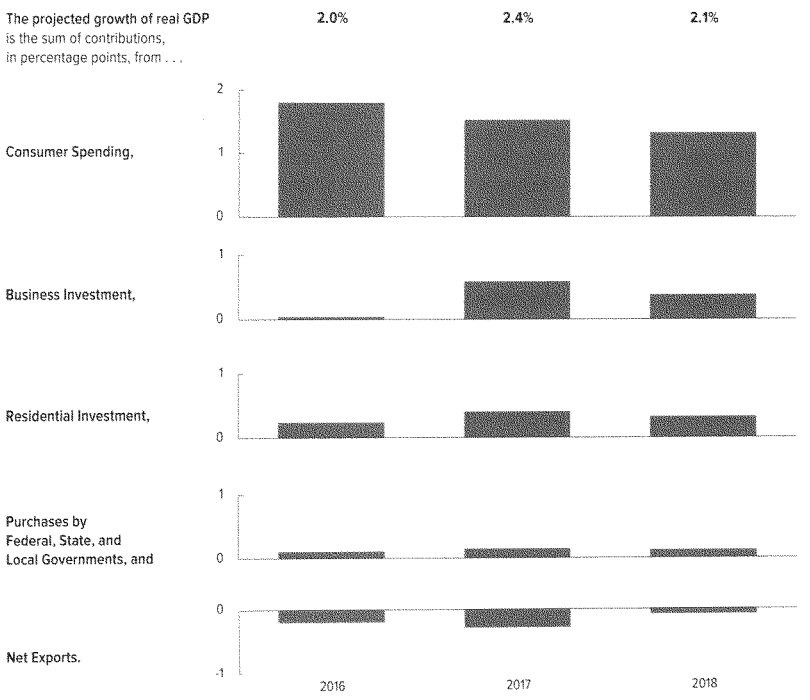
### Contributions to the Growth of Real GDP

CBO expects that consumer spending, business investment, and residential investment will drive the growth of real GDP over the next few years (see Figure 2-3).[8] Consumer spending is expected to provide the largest contribution to that growth, as it has generally done in the past. However, the anticipated pickup in growth in the second half of 2016 and in 2017 stems largely from faster growth in investment—particularly in business equipment and structures—as the growth in spending by consumers slows (see Table 2-2). On net, total purchases by governments are projected to have a small positive effect on the growth of GDP through 2020. In contrast,

8. Those components' contributions to real GDP growth reflect their growth rate weighted by their share of nominal GDP.

Figure 2-3.

**Projected Contributions to the Growth of Real GDP**




Source: Congressional Budget Office.

The values show the contribution of the major components of GDP to the projected growth rate of real GDP (that is, GDP adjusted to remove the effects of inflation). Consumer spending consists of personal consumption expenditures. Business investment comprises purchases of equipment, nonresidential structures, and intellectual property products, as well as the change in inventories. Residential investment comprises the construction of single-family and multifamily structures, manufactured homes, and dormitories; spending on home improvements; and brokers' commissions and other ownership-transfer costs. Purchases by federal, state, and local governments are taken from the national income and product accounts. Net exports are exports minus imports.

Data are annual. Changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next.

GDP = gross domestic product.

**Table 2-2.**

**Projected Growth in Real GDP and Its Components**

Percent

| | 2016 | 2017 | 2018 |
|---|---|---|---|
| Real GDP | 2.0 | 2.4 | 2.1 |
| Consumer Spending | 2.6 | 2.2 | 1.9 |
| Business Investment | 0.4 | 4.6 | 2.9 |
| Business fixed investment | 1.4 | 4.9 | 3.3 |
| Residential Investment | 6.7 | 10.9 | 8.0 |
| Purchases by Federal, State, and Local Governments | 0.6 | 0.8 | 0.7 |
| Federal | -0.8 | -0.4 | -0.7 |
| State and local | 1.5 | 1.6 | 1.5 |
| Exports | 2.2 | 3.7 | 3.0 |
| Imports | 3.2 | 4.9 | 3.0 |
| **Memorandum:** | | | |
| Net Exports (Change in billions of 2009 dollars) | -38.5 | -56.3 | -17.3 |

Source: Congressional Budget Office.

Real GDP is the output of the economy adjusted to remove the effects of inflation. Consumer spending consists of personal consumption expenditures. Business investment comprises business fixed investment—purchases of equipment, nonresidential structures, and intellectual property products—and the change in inventories. Residential investment comprises the construction of single-family and multifamily structures, manufactured homes, and dormitories; spending on home improvements; and brokers' commissions and other ownership-transfer costs. Purchases by federal, state, and local governments are taken from the national income and product accounts. Net exports are exports minus imports.

Data are annual. Changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next year.

GDP = gross domestic product.

net exports (exports minus imports) will restrain growth from 2016 through 2019 but contribute slightly to growth thereafter, CBO projects.

**Consumer Spending.** CBO expects consumer spending on goods and services, which accounts for over two-thirds of economic output, to be a major component of the growth of real GDP through 2020. It is expected to contribute nearly all—1.8 percentage points—of the 2.0 percentage-point growth of real GDP this year. However, CBO estimates that the contribution of consumer spending to real GDP growth will recede to 1.5 percentage points in 2017 and decline somewhat thereafter.

In CBO's projections, the main factor explaining the slowing growth of consumer spending over the next few years is slowing growth in real disposable personal income—which, in turn, largely reflects slowing growth in employees' real compensation (see Figure 2-4). The growth rate of real compensation diminishes, notably in 2017 and 2018, as the growth in employment slows; that moderation outweighs an acceleration in compensation per hour. Also reducing the projected growth of real disposable income are CBO's expectations that energy prices will continue to rebound through the end of 2017 (reducing some of the extra purchasing power that consumers gained in recent years) and that factors such as real bracket creep will slightly increase personal tax liabilities.

Nevertheless, CBO expects consumer spending to grow—by 2.6 percent in 2016 and by smaller amounts in later years. One factor projected to support consumer spending is further increases in housing prices, which will help raise household wealth. Another is improvements in households' access to credit and creditworthiness. As employment and disposable income rise further, CBO expects banks to continue to increase their willingness to make consumer loans. Households' debt and debt-service payments have fallen markedly as a percentage of disposable personal income since the recession ended in 2009, and delinquency rates on consumer loans are historically low, by some measures. Lighter debt burdens give families greater capacity to borrow for major purchases. Although interest rates are likely to rise in the future, their effect on debt-service burdens will be muted, because the rates are expected to remain low by historical standards.

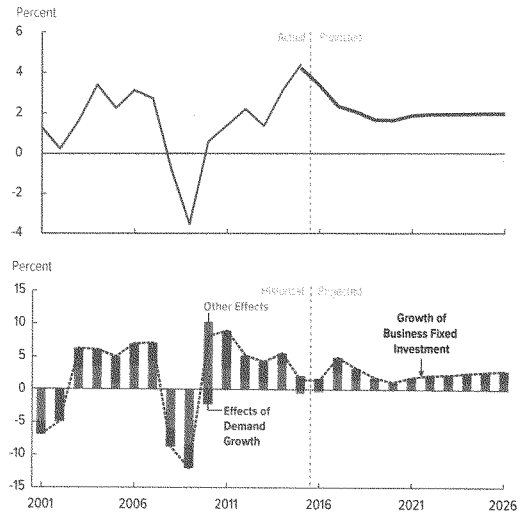
**Business Investment.** CBO projects that real business investment will contribute 0.1 percentage point to the

**Figure 2-4.**

**Factors Underlying the Projected Contributions to the Growth of Real GDP**

Slowing growth in the total amount of **employees' real compensation** is projected to slow the growth of consumer spending in the next few years.

Over the next few years, in CBO's assessment, businesses' response to the **past and expected growth of demand** will drive the growth of their real fixed investment. However, the faster growth of investment projected for 2017 is due to **other effects**, such as the end of a prolonged drop in the price of crude oil.




Source: Congressional Budget Office, using data from the Bureau of Economic Analysis, the Census Bureau, and the Federal Reserve.

The total amount of employees' real compensation is the sum of wages, salaries, and supplements divided by the price index for personal consumption expenditures. Percentage changes in employees' real compensation are measured from the average of one calendar year to the next. Values from 2001 through 2015 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2026 (the thick line) reflect the data available and projections made before July 29.

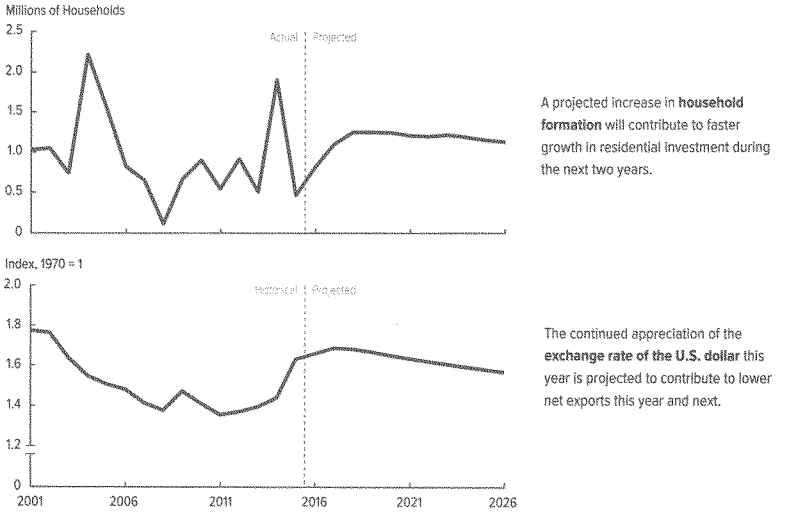
The effects of demand growth are the estimated effects of the past and expected growth of demand for businesses' output on the growth of real business fixed investment (purchases of equipment, nonresidential structures, and intellectual property products, adjusted to remove the effects of inflation). That is, businesses buy new capital both to meet the growth of demand for their goods and services since the last time they purchased capital and to meet the expected future growth of demand. (They also replace worn-out or obsolete capital.) The other effects on business fixed investment include such factors as taxes and the cost of financing investments. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next. Values reflect the data available before the Bureau of Economic Analysis released its revisions to the national income and product accounts on July 29, 2016.

Continued

growth of real GDP in 2016, the result of a negative contribution in the first half of the year and an expected positive one in the second half. Real business investment is projected to make a larger contribution to real GDP growth in 2017, 0.6 percentage points, and that increase accounts for much of the projected rise in the growth of GDP next year. Investment contributes 0.4 percentage points to the projected growth of output in 2018 and less after that. All of those contributions will be from business fixed investment—that is, investment in nonresidential structures, equipment, and intellectual property products—rather than from investment in inventories. Inventory investment is expected to make a small negative contribution to growth in 2016, largely because it slowed during the first half of the year, and thereafter to make neither a positive nor a negative contribution.

Figure 2-4. Continued

**Factors Underlying the Projected Contributions to the Growth of Real GDP**




Household formation is the change in the number of occupied housing units from the fourth quarter of the previous year to the fourth quarter of the year indicated.

The measure of the exchange rate of the dollar is an export-weighted average of exchange rates between the dollar and the currencies of the United States' leading trading partners. Data are calendar year averages.

Actual and historical data are plotted through 2015.

GDP = gross domestic product.

Businesses' response to the past and expected growth of demand for their output will drive the growth of their fixed investment over the next few years, in CBO's view (see Figure 2-4). In addition to replacing worn-out or obsolete capital assets, businesses invest in new assets to meet unexpected demand for their goods and services in the past and expected demand in the future. Although the current level of nonmining investment is roughly compatible with businesses' need to keep pace with expected new demand, in CBO's estimation, businesses still need to make up for some investment forgone during the recession and slow recovery—when sluggish consumer spending, residential construction, and spending by state and local governments curtailed investment. For example, both the national office vacancy rate and the national industrial availability rate are near the lows reached during the last business cycle.[9] CBO expects that the growth in demand will continue to significantly boost investment through 2018 but that it will slow and provide a smaller boost in later years.

A number of other factors contribute to the projected increase of business investment next year. For one, CBO anticipates that the price of crude oil will rise. During

9. The office vacancy rate is the amount of vacant office space for lease divided by the total square footage of office space. The industrial availability rate is the supply of available space in large industrial buildings as a percentage of the total amount of such space.

2015 and early 2016, falling oil prices sharply reduced real investment in mining structures and mining equipment; modestly higher oil prices are expected to boost mining-related investment next year. Also, factors that contributed to the weakness in real investment in nonmining equipment at the end of last year and during the first half of this year—declining productivity (which reduced the profitability of new investment) and weaker business confidence—will wane, in CBO's view.

Some factors temper CBO's projections of business investment after next year. Partial-expensing provisions in the tax code, which encourage investment by letting businesses deduct new capital expenses from their taxable income more rapidly than they could otherwise, will gradually expire during the 2018–2020 period. The increase in interest rates anticipated in CBO's forecast will also exert some downward pressure on investment, but not enough to offset the influence of the ongoing economic expansion.

**Residential Investment.** CBO expects real residential investment to keep growing rapidly over the next few years, even as mortgage interest rates rise.[10] The fact that the sector is small will limit its contribution to the growth of real GDP, but CBO expects that contribution to be noticeably larger than the historical average. CBO projects that residential investment will contribute 0.2 percentage points to the growth of real GDP in 2016—slightly less than in 2015, because the growth of housing starts slowed this year.[11] As such growth picks up, residential investment is projected to contribute 0.4 percentage points to GDP in 2017 and a smaller amount thereafter.

CBO anticipates that the construction of new homes will be the primary contributor to residential investment, mainly because of stronger household formation (see Figure 2-4).[12] Aside from a puzzling surge in 2014, household formation has been unusually weak since the 2006 peak of the housing boom, averaging only about 750,000 net new households per year over the past 10 years—far lower than the annual average of 1.23 million over the 20 years before that. Some of the recent weakness probably stems from a sharp tightening of mortgage lending standards from 2007 to 2009. Even though those standards remain tighter than they were before 2007, they have begun loosening over the past few years; as they continue to loosen and as employment continues to improve, household formation will gradually return to historical averages, CBO expects.

CBO anticipates that stronger growth in demand for housing will put upward pressure on house prices. In 2015, house prices rose by 5.9 percent.[13] CBO projects that they will increase by 4.2 percent in 2016 and by about 2.5 percent per year, on average, over the 2017–2020 period. (That projection incorporates an expected increase in the supply of housing units, which will temper the price increases resulting from stronger housing demand.)

**Government Purchases.** During each of the next three years, if current laws governing federal fiscal policies generally remained in place, total real purchases of goods and services by federal, state, and local governments would contribute 0.1 percentage point to the growth of real output, roughly the same amount as in 2015, CBO projects. The projected growth of the real value of total government purchases in 2016 results from an estimated 0.8 percent decrease in federal purchases and an estimated 1.5 percent increase in state and local purchases. CBO projects similar changes for 2017 and 2018, assuming that the statutory caps on funding for discretionary programs would cause reductions in real purchases by the federal government in both of those years. (See Chapter 1 for a discussion of how the caps affect projected outlays.) In later years of the projections, real purchases by the federal government change little.

In 2019 and 2020, real government purchases are projected to contribute 0.2 percentage points annually to the growth of real output, almost entirely because of growth in real purchases by state and local governments. CBO projects that state and local purchases will grow throughout the 2016–2020 period because, in its view, state and local governments will increase spending as their tax revenues continue to grow.

10. Residential investment consists mostly of the construction of single-family and multifamily residences, residential improvements, and real estate agents' commissions and other ownership transfer costs.

11. Housing starts are the number of new housing units on which construction has begun in a given period.

12. Household formation is the change in the number of occupied housing units.

13. That increase, which is on a fourth-quarter-to-fourth-quarter basis, was calculated from the Federal Housing Finance Agency's price index for home purchases.

**Net Exports.** CBO expects real net exports to fall from 2016 through 2019, extending the decline of the past two years.[14] The projected decline reflects CBO's expectation that real imports will grow faster than real exports, on average. The decline in real net exports reduces projected GDP growth by 0.2 percentage points in 2016, by 0.3 percentage points in 2017, by 0.1 percentage point in 2018, and by a negligible amount in 2019. In 2020, real net exports are expected to rise slightly, making a very small contribution to growth.

CBO's projection of real net exports is strongly influenced by a significant increase in the exchange value of the dollar during the past two years and by the agency's forecast of that value (see Figure 2-4). From mid-2014 through the second quarter of this year, the trade-weighted U.S. dollar appreciated by approximately 20 percent.[15] In CBO's estimation, that appreciation occurred because long-term interest rates declined among the United States' leading trading partners, particularly in Europe and Asia, and because the outlook for foreign growth deteriorated. Those developments boosted the dollar by increasing demand for dollar-denominated assets relative to assets denominated in other currencies. More recently, after the United Kingdom's vote to leave the European Union, the dollar rose significantly against the British pound and the euro, implying that the expected return on assets from the United Kingdom and the European Union fell in relation to the expected return on dollar-denominated assets. In CBO's projections, foreign central banks' efforts to boost aggregate demand in response to such factors continues to increase the exchange value of the dollar over the next two years, making U.S. exports more expensive abroad and thus tending to reduce net exports.

CBO also expects that stronger growth in the United States than in its trading partners will weaken net exports over the next two years. In particular, prices for oil and other commodities, which are lower than their averages over the past 10 years, are dampening growth in Canada and Mexico. The United Kingdom's pending exit from the European Union will probably reduce growth in European economies and especially in the British economy over at least the next few years. In addition, China's economic output is projected to keep decelerating as its economy shifts to depend less on investment and more on consumption.

In later years, however, as commodity prices rebound, CBO expects faster growth among the nation's major trading partners—especially Canada and Mexico, and to a lesser extent China. As a result, net exports are projected to decline less in 2019 than in previous years and to start rising in 2020. Moreover, CBO expects that as growth strengthens and inflation rises in foreign economies, central banks will gradually tighten their monetary policies—pushing up interest rates in those countries, reducing the exchange value of the dollar, and leading to an increase in U.S. net exports in 2020 (and beyond).

### The Labor Market

The labor market continued to improve in the first half of 2016. The primary measure that CBO uses to assess the amount of slack in the labor market—the estimated shortfall in employment from its potential amount—fell by about 1 million people between the end of 2015 and June 2016, when it stood at 1.4 million people. (For more discussion of the current amount of slack, see Box 2-2.) That decline reflected both a drop in the unemployment rate and an increase in the labor force participation rate.[16]

According to CBO's estimates, the growth of aggregate demand will increase demand for labor, shrinking the employment shortfall to about three-quarters of a million people by the end of 2016 and eliminating it by the middle of 2017 (see Figure 2-5). That projection reflects two expectations that partly offset each other: first, that the labor force will be smaller than its estimated potential size during that period; second, that the unemployment rate will fall below the estimated natural rate of unemployment (the rate that arises from all sources except fluctuations in

14. Net exports are currently negative, meaning that the United States imports more than it exports. A decrease in net exports indicates that imports are increasing more than exports.

15. CBO's measure of the exchange value of the dollar is an export-weighted average of the exchange rates between the dollar and the currencies of leading U.S. trading partners. Similarly, CBO calculates the economic growth of leading U.S. trading partners as a weighted average of their growth rates, using shares of U.S. exports as weights.

16. The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are at least 16 years old and are either working or seeking work.

Box 2-2.

## Current Slack in the Labor Market

Underused resources, or "slack," remains in the labor market. The Congressional Budget Office bases that assessment on its analysis of the employment shortfall, on various other measures of underused labor, and on such indicators as the growth of compensation and rates of hiring and quitting.

The employment shortfall, CBO's primary measure of slack in the labor market, is the difference between actual employment and the agency's estimate of potential (maximum sustainable) employment. Potential employment is what would exist if the unemployment rate equaled its natural rate—that is, the rate that arises from all sources except fluctuations in aggregate demand for goods and services—and if the labor force participation rate equaled its potential rate. Consequently, the employment shortfall has two components: an unemployment component and a participation component. The unemployment component is the difference between the number of jobless people seeking work at the current rate of unemployment and the number who would be jobless at the natural rate of unemployment. The participation component is the difference between the number of people in the current labor force and the number who would be in the labor force at the potential labor force participation rate. CBO estimates that the employment shortfall was about 1.4 million people in the second quarter of 2016; nearly the entire shortfall (about 1.3 million people) stemmed from a depressed labor force participation rate.

The employment shortfall accounts for the most important sources of slack in the current labor market, but it does not account for all of them. One source of slack that is not accounted for in the employment shortfall is an unusually large percentage of part-time workers who would prefer to work full time. In the second quarter of 2016, about 6 million workers, or about 4 percent of all workers, were employed part time for economic reasons—that is, because employers were offering them part-time jobs, even though they would have preferred full-time jobs. That 4 percent rate was still about 1 percentage point higher than the rate in the fourth quarter of 2007. But it is hard to determine how much of that 1 percentage-point difference represented slack, because part of the increase since 2007 might have been related to structural factors. One such factor is that employment has been shifting to industries that employ a larger fraction of part-time workers, such as service industries. That development may be increasing the share of employees who work fewer hours than they would like.[1]

Another source of slack is the number of people who are marginally attached to the labor force—that is, who are not looking for work now but have looked for it in the past 12 months. That number is larger than it was before the recession—about 1.7 million people in the second quarter of 2016, up from about 1.4 million in the fourth quarter of 2007. Because the elevated number of marginally attached workers is closely related to the depressed rate of labor force participation, it is largely reflected in CBO's measure of the employment shortfall. Marginally attached workers are also included in the U-6 measure of underused labor computed by the Bureau of Labor Statistics, along with the number of unemployed people and the number of people employed part time for economic reasons.[2] In the second quarter of this year, the U-6 measure stood at 9.7 percent, down slightly from 9.9 percent in the fourth quarter of last year but higher than the 8.5 percent observed before the recession.

Some measures of the number of hours worked, such as the average number of hours worked per week, could also indicate slack in the labor market. CBO does not use hours to measure slack because the agency forecasts average hours worked per week for only a portion of the economy (the nonfarm business sector). Nonetheless, by the end of 2015, the average number of hours worked per week had returned to its prerecession level, and in the nonfarm business sector, it had returned to its usual relationship with potential average hours worked per week. That fact suggests that any cyclical influence on the average number of hours worked per week is not currently a significant source of labor market slack.[3]

Other economic indicators offer mixed signals about the amount of slack remaining in the labor market. Hourly labor compensation continued to grow more slowly than labor productivity and inflation in the first half of 2016, indicating slack. But two indicators—the rate at which job seekers are hired and the rate at which workers are quitting their jobs, both measured as a fraction of total employment—show little evidence of slack: Both are currently near their prerecession levels.

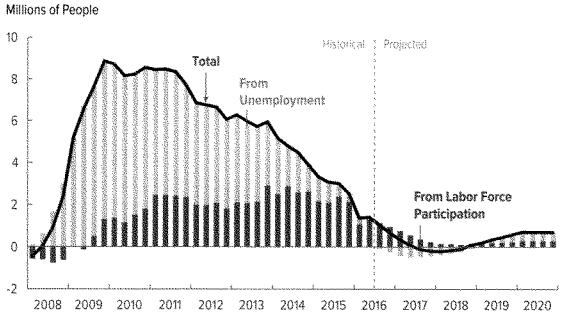
1. See Rob Valletta and Catherine van der List, "Involuntary Part-Time Work: Here to Stay?" Economic Letter 2015-19 (Federal Reserve Bank of San Francisco, June 8, 2015), http://tinyurl.com/pbywpck.

2. The U-6 measure is the number of unemployed workers, marginally attached workers, and workers employed part time for economic reasons as a percentage of the labor force plus all marginally attached workers. By contrast, the unemployment rate that is generally reported in the news—the U-3 unemployment rate—is the number of unemployed workers as a percentage of the labor force.

3. The percentage of workers who are working part time for economic reasons is above its prerecession level. Yet the average number of weekly hours worked per job has returned to its prerecession level. The apparent contradiction can be reconciled by noting two developments. First, the number of workers who hold multiple jobs is depressed, so the average number of hours worked per worker is lower than it would be otherwise. Second, the increase in the average number of weekly hours worked per job partly reflects an increase in overtime hours, which may have been concentrated in some jobs even as workers in other jobs would have preferred more hours.

Figure 2-5.

**The Employment Shortfall**




CBO expects the employment shortfall to disappear by the middle of next year.

Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

The employment shortfall is the sum of two components. The first, the employment shortfall from unemployment, is the number of people who are not employed but would be if the unemployment rate equaled its natural rate (the rate that arises from all sources except fluctuations in aggregate demand for goods and services). That component is projected to fall below zero this year through 2018, reflecting CBO's estimate that the unemployment rate will be below its natural rate during that period. The second component, the employment shortfall from labor force participation, is the number of people who are not employed but would be if the rate of labor force participation equaled its potential.

Data are quarterly.

aggregate demand for goods and services) from mid-2016 until the end of 2018.

Furthermore, the projected drop in the unemployment rate, combined with a labor force participation rate expected to approach its potential value in 2017, leads to a small projected employment surplus—that is, actual employment that is higher than CBO's estimate of potential employment—from the second half of 2017 through 2018. The agency expects the surplus to peak at roughly a quarter of a million people in early 2018. The increased demand for labor and competition for workers, CBO projects, will boost the growth of hourly labor compensation (a measure that includes not only wages and salaries but benefits as well). During 2018, the increase in labor compensation will slightly dampen demand for labor, eliminating the employment surplus by the end of the year, CBO anticipates.

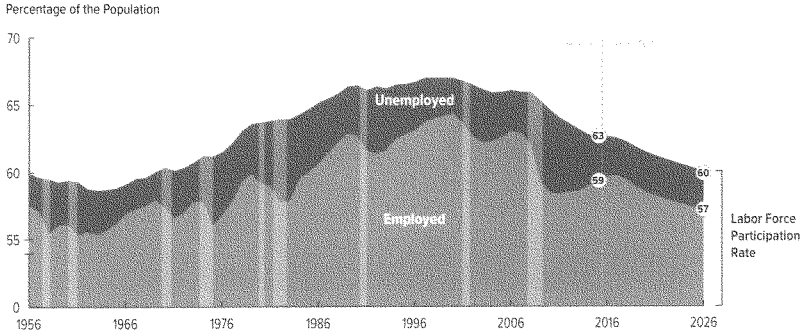
CBO's labor market projections for 2019 and 2020, by contrast, do not reflect expected cyclical developments in the economy. Instead, they serve as transitions to the values that CBO projects for later years, which are based primarily on long-term trends in the supply of labor. Consequently, the unemployment rate is projected to rise slightly in 2019 and 2020 so that it reaches its historical relationship with the natural rate of unemployment, increasing labor market slack to its average level over past decades.

**Employment.** CBO expects demand for labor to remain healthy. Nonfarm payroll employment rose solidly in the first half of 2016, posting an average increase of 186,000 jobs per month, and the agency expects it to continue to increase, though more slowly, over the next few years—by about 164,000 jobs per month in the second half of 2016 and by about 123,000 jobs per month in 2017. CBO projects that slowdown in employment growth not because it projects a cyclical decline in demand for labor but because it expects the retirement of baby boomers—people born between 1946 and 1964—to slow the growth of the labor force. CBO's employment projections imply that the number of people employed, measured as a percentage of the population, will be roughly unchanged over the next two years. After 2017, however, CBO expects a steady decline in that percentage, as the agency expects the labor force participation rate to fall (see Figure 2-6).

Figure 2-6.

**The Labor Force, Employment, and Unemployment**

The percentage of the population that is employed is projected to remain roughly unchanged over the next two years and then to decrease through 2026, mainly because baby boomers will be retiring and leaving the labor force.




Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

The labor force consists of people who are employed and people who are unemployed but who are available for work and are actively seeking jobs. Unemployment as a percentage of the population is not the same as the official unemployment rate, which is expressed as a percentage of the labor force. Here, the population is the civilian noninstitutionalized population age 16 or older.

Data are annual. Actual data are plotted through 2015.

**Labor Force Participation.** CBO expects the labor force participation rate to decline slightly next year and more quickly in later years, when its fall would match the fall of the potential participation rate (see Figure 2-7). The actual rate was 62.7 percent in the second quarter of this year—roughly where it has stood since the fourth quarter of 2013, and one-half of a percentage point below CBO's estimate of the potential rate. CBO projects that the actual rate will reach 62.6 percent by the middle of 2017. That rate would be roughly one-tenth of a percentage point below the potential rate, reflecting the long-term relationship between the two rates.

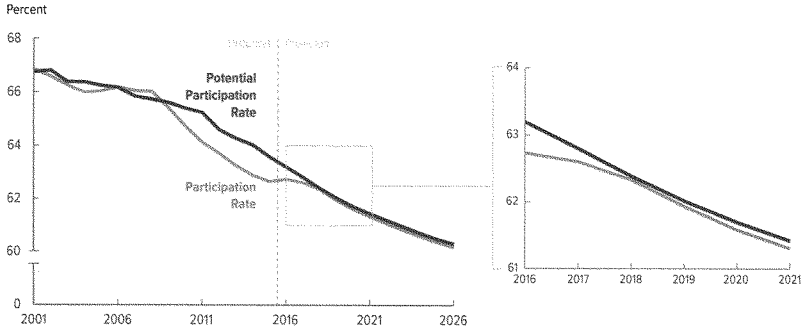
The projected declines in the actual and potential rates of labor force participation reflect several factors. The most important is that members of the baby-boom generation will continue to retire from the labor force in large numbers. The lingering effects of the recession and ensuing weak recovery also continue to push down participation, in CBO's view: Despite recent declines in long-term unemployment, some of the people who lost jobs in the recession left the labor force and will not return. Furthermore, federal tax and spending policies are expected to lower participation rates slightly over the next several years. In particular, the amount of labor that people are willing to supply is projected to continue to decline over the next few years as people continue adjusting their employment circumstances in response to the provisions of the Affordable Care Act. The structure of the tax code, which pushes some people with rising income into higher tax brackets, will also lower participation rates over the next decade. Finally, long-term trends involving particular groups of people are projected to push down the participation rate slightly. Those trends include, for example, declining labor force participation rates by younger and less educated workers.

During the next year and a half, the effect of those factors will be largely offset by continued improvement in hiring, as brisk employment growth and rising wages are expected to draw some workers back into the labor force. That improvement explains why the labor force participation rate declines only slightly in CBO's projections through

Figure 2-7.

**Labor Force Participation Rates**

CBO expects the rate of labor force participation to decline slightly next year and more quickly through 2026.




Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

The participation rate is the percentage of people in the civilian noninstitutionalized population who are at least 16 years old and in the labor force. The labor force consists of people who are employed and people who are unemployed but who are available for work and are actively seeking jobs. The potential participation rate is what the participation rate would be if not for the effects of the business cycle.

Data are annual. Historical data are plotted through 2015.

2017. Thereafter, the actual labor force participation rate is projected to decline, in tandem with the potential rate, to 61.5 percent in the fourth quarter of 2020.

**Unemployment.** The unemployment rate fell from 5.0 percent in the fourth quarter of 2015 to 4.9 percent in the middle of 2016. That decline continued the fall that occurred during 2015, when the unemployment rate decreased by nearly three-quarters of a percentage point. Most of the decline over the past two years stemmed from a drop in long-term unemployment (that is, unemployment lasting at least 27 consecutive weeks) as some people who had been unemployed for a long time obtained jobs (see Figure 2-8). That decline suggests that two factors that have perpetuated long-term unemployment in recent years—the stigma associated with it and the erosion of skills that can result from it—have diminished.

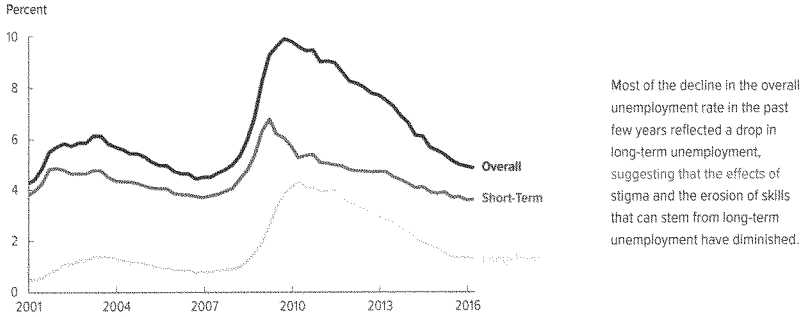
CBO projects that the unemployment rate will fall to 4.6 percent by the end of this year and to 4.5 percent next year, which would be about 0.2 percentage points below the agency's estimate of the natural rate of unemployment. That decline in the unemployment rate reflects a projected increase in demand for labor that would reduce the number of unemployed people. The stronger demand for labor would also encourage people to remain in or rejoin the labor force and seek work, raising the labor force participation rate and moderating the decline in the unemployment rate. Even though the unemployment rate is expected to be relatively low during the coming year, CBO anticipates that some slack will remain in the labor market through the middle of 2017 because fewer people will be participating in the labor market than would do so if the economy was operating at its potential.

CBO expects the natural rate of unemployment to be 4.7 percent from 2018 through 2020. That expectation reflects the rate's decline in recent years—which has occurred as the composition of the workforce has shifted toward older workers, who tend to have lower unemployment rates, and away from less educated workers, who tend to have higher unemployment rates.

**Labor Compensation.** Hourly compensation rates for workers in private industry, which have grown slowly

Figure 2-8.

**Unemployment Rates**




Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

The overall unemployment rate is the sum of the short-term unemployment rate and the long-term unemployment rate. The short-term unemployment rate is the percentage of the labor force that has been out of work for 26 weeks or less. The long-term unemployment rate is the percentage of the labor force that has been out of work for at least 27 consecutive weeks. The labor force consists of people who are employed and people who are unemployed but who are available for work and are actively seeking jobs.

Data are quarterly and are plotted through the second quarter of 2016.

since the end of the recession, have recently shown signs of a faster increase. CBO estimates that the employment cost index (ECI) for those workers grew at an average annual rate of 2 percent during the 2010–2015 period but at an average annual rate of 2¾ percent during the first half of this year. The agency projects that the ECI for those workers will grow by more than 3 percent a year, on average, over the next several years (see Figure 2-9). The growth rates of other measures of compensation, such as the average hourly earnings of production and nonsupervisory workers in private industries, are similarly expected to increase.[17]

CBO's projections of labor compensation are based on its projections of demand for workers, slack in the labor market, productivity, and inflation. In the past, growth in labor compensation has been among the last labor market indicators to recover after a recession, picking up only when little slack is left in the labor market. As slack diminishes and firms must increasingly compete for a shrinking pool of unemployed or underemployed workers, growth in hourly compensation will rise, in CBO's assessment.

## Inflation

CBO expects inflation to rise through 2017. Diminishing slack in the economy will increase inflation, but widely held expectations of low and stable inflation will restrain the increase.

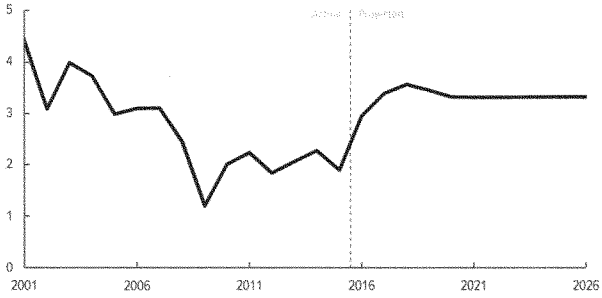
This year, CBO projects, the rate of inflation in the PCE price index will rise to 1.5 percent, up from 0.5 percent in 2015 (see Figure 2-10). That increase reflects diminishing slack and CBO's forecast of higher prices for crude oil, which will boost prices for energy goods and services; working in the opposite direction is an increase in the value of the dollar in relation to other currencies, which will suppress inflation in the price of many imported goods. In 2017, the rate of inflation is projected to rise to 2.0 percent, the Federal Reserve's longer-run goal. After 2017, CBO expects the rate to remain at 2.0 percent. That projection reflects CBO's judgment that consumers and businesses expect the Federal Reserve to adjust monetary policy to prevent inflation from deviating from its 2 percent target for long. CBO has a similar projection

17. An additional indicator of recent acceleration in wage growth comes from the Federal Reserve Bank of Atlanta's Wage Growth Tracker, which measures the median change from year to year in the hourly wages recorded in the Current Population Survey. That indicator shows average wage growth of 3.3 percent in the first half of 2016, compared with 3.1 percent in 2015. See www.frbatlanta.org/chcs/wage-growth-tracker for more details.

**Figure 2-9.**

**Hourly Labor Compensation**

Percentage Change




CBO projects that reduced slack in the labor market, along with faster growth in productivity and prices, will boost the growth of hourly labor compensation.

Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

Hourly labor compensation is measured by the employment cost index for the total compensation—wages, salaries, and employers' costs for employees' benefits—of workers in private industry.

Data are annual. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next. Actual data are plotted through 2015.

for core PCE inflation, which excludes food and energy prices. In CBO's forecast, that inflation rate reaches 1.8 percent this year, 1.9 percent in 2017, and 2.0 percent in 2018, where it remains through 2020.

The consumer price index for all urban consumers (CPI-U) and its core version are expected to increase a little more quickly than their PCE counterparts because of the different methods used to calculate them. CBO projects that the difference between inflation as measured by the CPI-U and inflation as measured by the PCE price index will generally be about 0.4 percentage points per year, which is close to the average difference over the past several decades.

## The Economic Outlook for 2021 Through 2026

CBO's projections of GDP, unemployment, inflation, and interest rates for 2021 through 2026—unlike its projections for the next few years—are not based on forecasts of cyclical developments in the economy. Rather, they are based mainly on projections of underlying trends in key variables, such as the size of the labor force, the number of hours worked, capital investment, and productivity. CBO also considers the effects on those variables of the federal tax and spending policies specified in current law.

CBO has made the following projections for the 2021–2026 period:

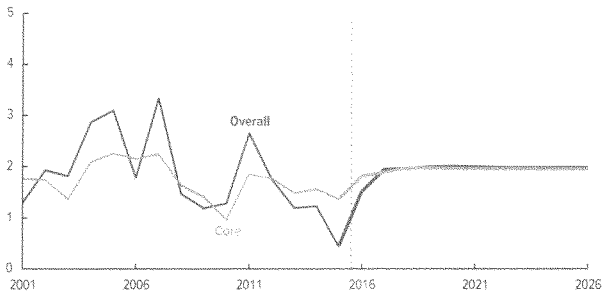
- Actual and potential real GDP grow at an average rate of roughly 2.0 percent per year. Real GDP stays one-half of one percent below real potential GDP, on average—as it has roughly been, on average, over the seven complete business cycles that occurred between 1961 and 2009.[18]
- The unemployment rate remains stable at 4.9 percent, slightly above the estimated natural rate of 4.7 percent. That gap is consistent with the average gap between actual and potential GDP.
- Both overall inflation and core inflation average 2.0 percent per year as measured by the PCE price index, and both are slightly higher as measured by the CPI-U.
- The interest rates for 3-month Treasury bills and 10-year Treasury notes average 2.8 percent and 3.6 percent, respectively.

18. See Congressional Budget Office, *Why CBO Projects That Actual Output Will Be Below Potential Output on Average* (February 2015), www.cbo.gov/publication/49890.

Figure 2-10.

**Inflation**

Percentage Change in Prices




CBO expects inflation to rise to the Federal Reserve's goal of 2 percent next year—an expectation that is consistent with CBO's projection of diminishing slack in the economy.

Source: Congressional Budget Office, using data from the Bureau of Economic Analysis.

The overall inflation rate is based on the price index for personal consumption expenditures; the core rate excludes prices for food and energy.

Data are annual. Values from 2001 through 2015 (the thin lines) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2026 (the thick lines) reflect the data available and projections made before July 29. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next.

## Potential Output

Real output will grow more quickly during the 2021–2026 period than it has during the past decade, CBO expects, because the economy's productivity will grow more quickly and because business investment will be stronger. Nevertheless, slower growth in the nation's supply of labor will probably keep economic growth weaker than it was during the 1980s, 1990s, and early 2000s.

**Growth in Potential Output Compared With Growth Since the Last Recession.** For the 2021–2026 period, CBO expects potential output to grow by 2.0 percent per year, on average (see Table 2-3). Such growth would be faster than the 1.5 percent per year estimated for the 2008–2015 period. The main reason for the projected increase is that CBO expects potential labor force productivity (the ratio of potential GDP to the potential labor force) to accelerate. By contrast, CBO anticipates that the potential labor force will grow at almost exactly the same rate at which it grew from 2008 through 2015.

In CBO's projections, the pickup in potential labor force productivity is concentrated in the nonfarm business sector, which accounts for about three-quarters of GDP. In particular, CBO expects growth in potential TFP in the nonfarm business sector to quicken from its unusually slow pace of 0.8 percent per year since 2008 to 1.2 percent during the 2021–2026 period.[19]

CBO also projects that capital services, which contribute to labor productivity and potential output, will grow more quickly than they did from 2008 through 2015. The growth of capital services in the nonfarm business sector has been restrained since 2008 because of weak investment, itself partly a response to the cyclical weakness of aggregate demand for goods and services. And in the long term, the growth of capital services generally depends on increases in TFP and hours worked, both of which have grown slowly since 2008. In CBO's projections, most of the increase in the growth of capital services between the 2008–2015 period and the 2021–2026 period comes from faster growth in potential TFP.

19. CBO projects that by 2020, growth in potential TFP will gradually return to a rate equal to the weighted average of the growth rates estimated between 1991 and 2015. The projected rate for 2020 is slightly slower than the unweighted average for the 1991–2015 period because CBO places more weight on the relatively slow growth of TFP during the recession and recovery than on the faster growth rates of the 1990s and early 2000s.

Table 2-3.

**Key Inputs in CBO's Projections of Potential GDP**

Percent

| | Average Annual Growth | | | | | | | Projected Average Annual Growth | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1950-1973 | 1974-1981 | 1982-1990 | 1991-2001 | 2002-2007 | 2008-2015 | Total, 1950-2015 | 2016-2020 | 2021-2026 | Total, 2016-2026 |
| **Overall Economy** | | | | | | | | | | |
| Potential GDP | 4.0 | 3.2 | 3.2 | 3.2 | 2.5 | 1.5 | 3.2 | 1.7 | 2.0 | 1.8 |
| Potential Labor Force | 1.6 | 2.5 | 1.6 | 1.2 | 1.0 | 0.5 | 1.5 | 0.4 | 0.5 | 0.5 |
| Potential Labor Force Productivity[a] | 2.4 | 0.7 | 1.6 | 2.0 | 1.5 | 0.9 | 1.7 | 1.3 | 1.4 | 1.4 |
| **Nonfarm Business Sector** | | | | | | | | | | |
| Potential Output | 4.1 | 3.6 | 3.4 | 3.7 | 2.8 | 1.7 | 3.4 | 1.9 | 2.3 | 2.1 |
| Potential Hours Worked | 1.4 | 2.3 | 1.6 | 1.4 | 0.3 | 0.5 | 1.3 | 0.3 | 0.5 | 0.4 |
| Capital Services | 3.8 | 3.8 | 3.5 | 3.8 | 2.8 | 1.7 | 3.4 | 2.3 | 2.1 | 2.2 |
| Potential TFP | 1.9 | 1.0 | 1.1 | 1.4 | 1.7 | 0.8 | 1.4 | 0.9 | 1.2 | 1.1 |
| Potential TFP excluding adjustments | 1.9 | 1.0 | 1.1 | 1.4 | 1.3 | 0.8 | 1.4 | 0.9 | 1.2 | 1.1 |
| Adjustments to TFP (Percentage points)[b] | 0 | 0 | 0 | 0.1 | 0.4 | 0 | 0.1 | * | * | * |
| Contributions to the Growth of Potential Output (Percentage points) | | | | | | | | | | |
| Potential hours worked | 0.9 | 1.5 | 1.0 | 0.9 | 0.2 | 0.3 | 0.9 | 0.2 | 0.3 | 0.3 |
| Capital services | 1.2 | 1.2 | 1.2 | 1.3 | 1.0 | 0.6 | 1.1 | 0.8 | 0.7 | 0.8 |
| Potential TFP | 1.9 | 1.0 | 1.1 | 1.4 | 1.7 | 0.8 | 1.4 | 0.9 | 1.2 | 1.1 |
| Total Contributions | 4.0 | 3.7 | 3.4 | 3.6 | 2.9 | 1.7 | 3.4 | 1.9 | 2.3 | 2.1 |
| Potential Labor Productivity[c] | 2.6 | 1.3 | 1.8 | 2.3 | 2.6 | 1.2 | 2.1 | 1.6 | 1.8 | 1.7 |

Source: Congressional Budget Office.

Potential GDP is CBO's estimate of the maximum sustainable output of the economy.

GDP = gross domestic product; TFP = total factor productivity; * = between -0.05 percentage points and zero.

a. The ratio of potential GDP to the potential labor force.

b. The adjustments reflect CBO's estimate of the unusually rapid growth of TFP between 2001 and 2003, as well as changes in the labor force's average level of education and experience.

c. The ratio of potential output to potential hours worked in the nonfarm business sector.

Nonetheless, the projections of the potential labor force, capital services, and potential TFP are dampened because of lingering effects of the recession and slow recovery.

Because of those factors, CBO expects potential labor force productivity for the economy as a whole to pick up to 1.4 percent. That growth rate is substantially higher than the 0.9 percent average rate that CBO estimates for the 2008–2015 period.

**Growth in Potential Output Compared With Growth in Previous Business Cycles.** Even though CBO's projection of the growth of potential output over the 2021–2026 period represents an acceleration, it is a full percentage point slower than the estimated 3.0 percent average annual growth that the economy experienced between 1981 and 2007. Most of that difference reflects the slower growth of the potential labor force, which will result mainly from the ongoing retirement of baby boomers and from a relatively stable labor force participation rate among working-age women. (That rate increased sharply from the 1960s to the mid-1990s.) Federal tax and spending policies set in current law are also projected to cause some people to work less than in earlier decades (see "The Labor Market" below). The rest of the difference between the growth of potential output projected for the 2021–2026 period and the growth seen between 1981 and 2007 results from a slower increase in potential

labor force productivity (which averaged 1.7 percent from 1981 to 2007). That slowdown is attributable mainly to two further projections of CBO's: slower growth of capital services and slower potential TFP growth in the nonfarm business sector. Those projections mainly reflect CBO's projection of greater federal borrowing, which would crowd out some private investment, and the agency's expectation that some of the very slow growth of TFP since the 2007–2009 recession will persist.

### The Labor Market

In CBO's projections, the unemployment rate follows its long-term relationship with the natural rate of unemployment. Specifically, the unemployment rate falls from 5.0 percent in the first quarter of 2020 to 4.9 percent in the fourth quarter of 2026—roughly a quarter of a percentage point higher than the natural rate of 4.7 percent.[20] The natural rate also declines slightly over that period, reflecting the shift in the composition of the workforce toward older workers, who tend to have lower unemployment rates, and away from less educated workers, who tend to have higher ones.

CBO projects a potential rate of labor force participation of 60.3 percent in 2026. That rate is about 1 percentage point lower than what the agency projects for 2021 and about 5½ percentage points lower than the estimated rate at the end of 2007. CBO attributes roughly 4½ percentage points of the decline between 2007 and 2026 to the aging of the population (because older people tend to participate less in the labor force than younger ones do) and to the reduced participation of less skilled workers, and one-quarter of a percentage point to the fact that some workers withdrew from the labor force in response to the recent recession and slow recovery. The rest of the projected decline in potential labor force participation stems from the Affordable Care Act and the structure of the tax code, both of which reduce workers' incentive to supply labor. CBO projects that employment as a percentage of the population will fall to 57 percent in 2026, reflecting that decline in the potential labor force participation rate.

Real compensation per hour in the nonfarm business sector, a measure of labor costs that is a useful gauge of longer-term trends, will grow at an average annual rate of 1.9 percent between 2021 and 2026, CBO projects. That projection is consistent with the agency's projection that the annual growth of labor productivity in that sector will average 1.8 percent over that period, reflecting the close historical relationship between productivity growth and real compensation growth. Although that relationship broke down in the early 2000s, when real compensation per hour grew more slowly than productivity, in recent years the two have grown at similar rates, suggesting that the relationship has been largely restored. CBO expects that it will be maintained in the future. Another measure of hourly labor compensation, the ECI for workers in private industry, shows a similar pattern in the agency's projections.

### Inflation

In CBO's projections, inflation as measured by the overall PCE and the core PCE price indexes averages 2.0 percent per year over the 2021–2026 period. That rate is consistent with the Federal Reserve's longer-run goal and is broadly in line with widely held expectations. As measured by the CPI-U and the core CPI-U, projected inflation is higher during that period, at 2.4 percent and 2.3 percent per year, respectively. The CPI-U and the core CPI-U have grown at similar rates, on average, over long periods. But from 2021 through 2026, CBO expects energy prices to rise slightly more quickly than other prices, making the CPI-U grow more quickly than the core CPI-U, on average.

### Interest Rates

CBO projects that the interest rates on 3-month Treasury bills and 10-year Treasury notes will average 2.8 percent and 3.6 percent, respectively, throughout the 2021–2026 period. The federal funds rate is projected to be 3.1 percent.

The projected *real* interest rate on 10-year Treasury notes—that is, after the effect of expected inflation (as measured by the CPI-U) is removed—equals 1.2 percent between 2021 and 2026. That rate would be well above the current real rate but well below the average real rate of 2.9 percent between 1990 and 2007. CBO uses that period for comparison because it featured fairly stable expectations of inflation and no severe economic downturns or financial crises.

According to CBO's analysis, average real interest rates on Treasury securities will be lower than they used to be for several reasons, including slower growth in the labor force and slightly slower growth of productivity, both of which

20. The projected gap between the unemployment rate and the natural rate corresponds to the projected gap between output and potential output.

will reduce the rate of return on capital. Furthermore, a greater share of total income is expected to go to high-income households, which will increase saving and make more funds available for borrowing. The premium on risky assets is expected to be higher than its average from 1990 to 2007—boosting relative demand for Treasury securities, increasing their prices, and thereby lowering their interest rates. And net inflows of capital from other countries, measured as a percentage of GDP, are also expected to be higher, making more funds available for borrowing.

CBO expects the term premium—the extra return paid to bondholders for the added risk associated with holding long-term bonds—to be smaller from 2021 through 2026, on average, than it was before the late 1990s. Over the past two decades, the prices of long-term Treasury securities and of risky assets in the United States have moved in opposite directions. In other words, periods with weaker economic growth and lower returns in the stock market have been associated with increases in the prices of Treasury securities, which was not the case before the early 2000s. As a result, investors trying to protect themselves from adverse economic surprises may demand long-term Treasury securities to a greater degree than they used to. A related factor pushing down the term premium is that investors may have increased their demand for financial assets, such as long-term Treasury securities, that can protect them from unexpectedly low inflation. Altogether, CBO anticipates, that greater demand for long-term Treasury securities will result in a term premium and long-term interest rates that are lower than they were before the late 1990s.

Other factors are projected to push real interest rates up from their earlier average, but not by enough to offset the factors pushing rates down. Federal debt is projected to grow as a percentage of GDP, increasing the supply of Treasury securities. The country's ratio of older people, who will be drawing down their savings, to younger workers in their prime saving years will be higher than it was before; that will decrease saving, thereby making fewer funds available for borrowing. And a larger share of income will come from capital, increasing returns on capital assets with which Treasury securities compete.[21]

In addition to considering those factors, CBO relies on information from financial markets when it projects interest rates over the long term, and incorporating that information has tended to reduce the agency's projections in recent years. For example, the current interest rate on long-term Treasury securities is determined by investors' expectations of interest rates on shorter-term securities several years into the future. Prices in financial markets indicate that investors expect short-term interest rates to rise only gradually over the next several years, possibly because they expect certain forces putting downward pressure on interest rates in the United States to persist over the next decade. One force is weakness in global financial and monetary conditions, which has resulted in a flight to low-risk securities and currencies, especially U.S. Treasury securities. A second force is low interest rates on foreign assets, which push down rates on U.S. assets that can be substituted for them. Finally, investors may have concluded that obstacles to U.S. economic growth will persist, requiring the Federal Reserve to keep short-term interest rates extraordinarily low. As a result, CBO's projections of long-term rates are lower than they would have been otherwise.

## Projections of Income From 2016 Through 2026

Economic activity and tax revenues depend on aggregate income—the total amount of income in the economy—and on its distribution among various categories, such as labor income, domestic economic profits, proprietors' income, and interest and dividend income. CBO therefore projects income in those categories over the next 10 years, estimating each category's share of gross domestic income (GDI, the income earned in the production of GDP).[22] The categories of income that affect revenues most strongly are labor income (especially wage and salary payments) and domestic economic profits.[23]

21. For a more detailed discussion of the factors affecting future interest rates, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), pp. 100–103, www.cbo.gov/publication/51580.

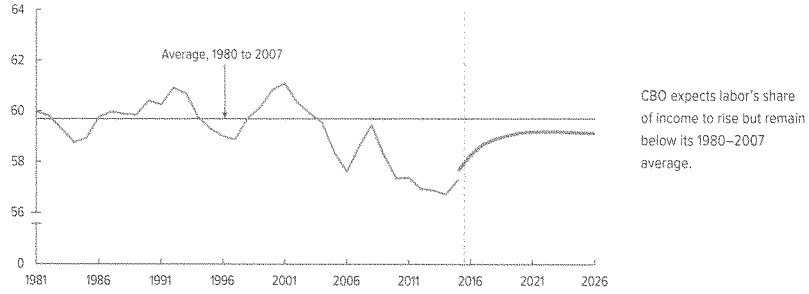
22. In principle, GDI equals GDP because each dollar of production yields a dollar of income; in practice, they differ because of difficulties in measuring both quantities.

23. Calculating domestic economic profits involves adjusting estimates of corporations' domestic profits to remove distortions in depreciation allowances caused by tax rules and to exclude the effects of inflation on the value of inventories. Estimates of domestic economic profits exclude certain income of U.S.-based multinational corporations that is derived from foreign sources, most of which does not generate corporate income tax receipts in the United States.

Figure 2-11.

**Labor Income**

Percentage of Gross Domestic Income




Source: Congressional Budget Office, using data from the Bureau of Economic Analysis.

Labor income is the sum of employees' compensation and CBO's estimate of proprietors' income that is attributable to labor. Gross domestic income is all income earned in the production of gross domestic product. For further discussion of labor's share of income, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433.

Data are annual. Values from 1981 through 2015 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2026 (the thick line) reflect the data available and projections made before July 29.

In CBO's projections, labor income grows more quickly than other kinds of income through 2020, increasing its share of GDI from 57.7 percent in 2015 to 59.1 percent in 2020 (see Figure 2-11). That will happen for two reasons, CBO expects: Employment will rise, and compensation per hour will grow more quickly as slack in the labor market dissipates. As a result, the bargaining power of workers will improve, and the share of income that goes to corporate profits will be smaller. Later in the projection period, however, the growth of hourly compensation is projected to slow slightly, which will stem further rises in labor's share of GDI.

Despite the projected growth of labor's share of GDI, CBO expects some factors that have depressed that share since 2000 to continue during the coming decade. As a result, in CBO's projections, labor's share of GDI does not return to its 1980–2007 average of nearly 60 percent. One such factor is globalization, which has tended to move the production of labor-intensive goods and services to countries with labor costs that are lower than those in the United States. Another factor is technological change, which may have increased returns to capital more than returns to labor.

CBO projects that domestic economic profits, which equaled 9.3 percent of GDI in 2015, will fall to 7.4 percent in 2026. Over the next several years, that decline is expected to occur largely because of a pickup in the growth of labor compensation but also because of an increase in corporate interest payments (the result of rising interest rates) and an increase in the income of sole proprietorships and partnerships. In CBO's projections, while labor's share of GDI rises and domestic economic profits fall as a percentage of GDI, the sum of all categories of income grows less rapidly than output, reversing a trend seen since 2000 and making GDI equal to GDP by the second half of the projection period.

Another measure of overall income, real gross national product (GNP), is projected to grow at an average rate of 1.9 percent per year between 2016 and 2026. Unlike the more commonly cited GDP, GNP includes income that U.S. residents earn abroad and excludes income that foreigners earn in this country. GNP is therefore a better measure than GDP of the resources available to U.S. households.

## Some Uncertainties in the Economic Outlook

Even if no significant changes were made to the federal policies specified in current law, economic outcomes would undoubtedly differ from CBO's projections. The agency therefore constructs its projections so that they fall in the middle of the distribution of possible outcomes, given current law and the economic data that are available. The economy will inevitably fluctuate, but CBO expects periods of weak and strong economic growth to balance out, on average, in a way that is consistent with its projections over the next 10 years.

It is possible, however, that periods of weak and strong economic growth will not balance out, particularly in a given 10-year period. If a prolonged period of slower-than-projected growth was not offset by a period of faster-than-projected growth, CBO's projections of growth over the entire 10-year projection period would probably turn out to be too high; so would its projections of interest rates and inflation, in all likelihood. Similarly, if a prolonged period of stronger-than-projected growth was not offset by a period of weaker-than-projected growth, CBO's 10-year projections of growth, interest rates, and inflation would probably turn out to be too low. CBO's projections for 2016 through 2020 and its projections for 2021 through 2026 are uncertain for different reasons.

### Uncertainty From 2016 Through 2020

Over the next five years, many developments—such as unforeseen changes in the labor market, the housing market, business confidence, or international conditions—could make economic growth and other variables differ considerably from what CBO has projected. On the one hand, the agency's current forecast of employment and output for the 2016–2020 period may be too pessimistic. For example, firms might respond to the expected increase in aggregate demand for goods and services with more robust hiring and investment than CBO anticipates. If so, the unemployment rate could fall more sharply and inflationary pressures could rise more quickly than CBO projects. In addition, a greater-than-expected easing of borrowing constraints in mortgage markets could support more rapid growth of the number of households and residential investment than CBO anticipates, accelerating the housing market's recovery and further boosting house prices. Households' increased wealth could then buttress consumer spending, raising GDP.

On the other hand, CBO's forecast for 2016 through 2020 may be too optimistic. For example, if the increased tightness of labor markets does not lead to increases in hourly wages and benefits, household income and consumer spending could grow more slowly than CBO anticipates. A decline in the rate of economic growth in China could weaken the U.S. economy by disrupting the international financial system and reducing global economic growth; so could increased uncertainty in the United Kingdom and the European Union as a result of the former's vote to leave the latter.

In addition, there is a possibility that the economy will enter a recession in the next few years because of those developments or others. The current economic expansion has lasted 7 years—longer than the average expansion (about 5 years) in the previous 11 business cycles, a series that began in 1945. Over the past 30 years, expansions that have lasted at least 6 years and that are characterized by a relatively low unemployment rate, as the current expansion is, have tended to fall into recession within 2 years. However, the duration of economic expansions has varied greatly. And although the longest expansion over the previous 11 business cycles has been 10 years, no statistical evidence suggests that the length of an expansion alone causes the economy to enter a recession. Some recent indicators, such as a slowdown in the growth of investment spending and a narrowing of the spread between long-term and short-term interest rates, point to a slightly elevated (but still low) risk of recession, while others, such as the growth of nonfarm payroll employment, suggest that the risk of recession has not increased.

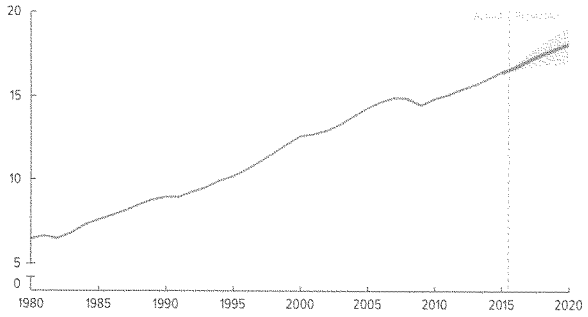
To roughly quantify the degree of uncertainty in its projections for the next five years, CBO analyzed its past forecast errors for the growth rate of real GDP over five-year periods since 1976. Those errors have a standard deviation of 1.3 percentage points.[24] Thus, in CBO's view, there is a two-thirds chance that the average growth rate of real GDP will be between 0.7 percent and 3.2 percent over the next five years (see Figure 2-12). Similarly, CBO's forecast errors for inflation over five-year periods (as measured by the CPI-U) have a standard deviation of 1.5 percentage points, which suggests that there is a

24. For more on the inherent uncertainty underlying economic forecasts, see Congressional Budget Office, *CBO's Economic Forecasting Record: 2015 Update* (February 2015), www.cbo.gov/publication/49891.

Figure 2-12.

**The Uncertainty of CBO's Projection of Real GDP**

Trillions of 2009 Dollars




In CBO's baseline projections, **real GDP** grows at an average annual rate of 2.0 percent over the 2016–2020 period—but there is a two-thirds chance that the growth will be between 0.7 percent and 3.2 percent.

Sources: Congressional Budget Office; Bureau of Economic Analysis.

The shaded area around CBO's baseline projection of real GDP (that is, nominal GDP adjusted to remove the effects of inflation) is one way of illustrating the uncertainty of that projection. The area is based on the errors in CBO's one-year through five-year projections from 1976 through 2015. To construct the area, CBO used values that were one standard deviation above and below its baseline projection for each of the years from 2016 through 2020. In other words, there is a two-thirds chance that real GDP will turn out to be within that area in each year.

Data are annual. Values from 1980 through 2015 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2020 (the thick line) reflect the data available and projections made before July 29.

GDP = gross domestic product.

two-thirds chance that inflation will average between 0.6 percent and 3.6 percent over the next five years.

### Uncertainty From 2021 Through 2026

The factors that will determine the economy's output later in the coming decade are also uncertain. For example, if the labor force grew more quickly than expected—say, because older workers chose to stay in the labor force longer than expected—the economy could grow considerably more quickly than it does in CBO's projections. The natural rate of unemployment could be lower than expected, or productivity could grow more rapidly; those developments would likewise make the economy grow more quickly. By contrast, the economy could grow more slowly than expected—for instance, if the growth rate of labor productivity did not increase from its postrecession level, as it does in CBO's projections.

The recent rise in income inequality adds to uncertainty about output. Economists' findings about how income inequality affects economic growth have been mixed: Some studies conclude that it raises growth, others that it slows growth, and still others that it has no effect. Economists continue to study the issue, and CBO will update its analysis if research yields a more definitive conclusion. In the meantime, CBO's projections include effects of income inequality only implicitly—that is, to whatever extent past changes in inequality have affected economic growth.

## Comparison With CBO's January 2016 Projections

In two important respects, CBO's current economic projections differ from those that it issued in January 2016 (see Table 2-4). First, CBO expects real GDP and real potential GDP in 2026 to be 1.6 percent lower than was projected in January. Second, CBO expects interest rates in 2026 to be lower than previously projected—short-term rates by 0.4 percentage points and long-term rates by 0.5 percentage points. Other changes to CBO's projections are modest.

Table 2-4.

## Comparison of CBO's Current and Previous Economic Projections for Calendar Years 2016 Through 2026

| | | | | Annual Average | | |
|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2016–2020 | 2021–2026 | 2016–2026 |
| | Percentage Change From Fourth Quarter to Fourth Quarter | | | | | |
| Real GDP[a] | | | | | | |
| August 2016 | 2.0 | 2.4 | 2.1 | 1.9 | 2.0 | 2.0 |
| January 2016 | 2.7 | 2.5 | 2.1 | 2.2 | 2.0 | 2.1 |
| Nominal GDP | | | | | | |
| August 2016 | 3.5 | 4.3 | 3.9 | 3.8 | 4.0 | 3.9 |
| January 2016 | 4.3 | 4.4 | 4.0 | 4.1 | 4.1 | 4.1 |
| PCE Price Index | | | | | | |
| August 2016 | 1.5 | 2.0 | 2.0 | 1.9 | 2.0 | 1.9 |
| January 2016 | 1.5 | 2.0 | 2.0 | 1.9 | 2.0 | 1.9 |
| Core PCE Price Index[b] | | | | | | |
| August 2016 | 1.8 | 1.9 | 2.0 | 1.9 | 2.0 | 2.0 |
| January 2016 | 1.6 | 1.9 | 2.0 | 1.9 | 2.0 | 1.9 |
| Consumer Price Index[c] | | | | | | |
| August 2016 | 1.8 | 2.3 | 2.3 | 2.2 | 2.4 | 2.3 |
| January 2016 | 1.7 | 2.4 | 2.4 | 2.3 | 2.4 | 2.3 |
| Core Consumer Price Index[b] | | | | | | |
| August 2016 | 2.3 | 2.2 | 2.3 | 2.3 | 2.3 | 2.3 |
| January 2016 | 2.0 | 2.2 | 2.3 | 2.2 | 2.3 | 2.3 |
| GDP Price Index | | | | | | |
| August 2016 | 1.5 | 1.8 | 1.8 | 1.8 | 2.0 | 1.9 |
| January 2016 | 1.6 | 1.9 | 1.9 | 1.9 | 2.0 | 2.0 |
| Employment Cost Index[d] | | | | | | |
| August 2016 | 2.8 | 3.1 | 3.3 | 3.1 | 3.1 | 3.1 |
| January 2016 | 2.9 | 3.3 | 3.4 | 3.2 | 3.2 | 3.2 |
| Real Potential GDP | | | | | | |
| August 2016 | 1.5 | 1.6 | 1.7 | 1.7 | 2.0 | 1.8 |
| January 2016 | 1.6 | 1.7 | 1.9 | 1.9 | 2.0 | 2.0 |
| | Annual Average | | | | | |
| Unemployment Rate (Percent) | | | | | | |
| August 2016 | 4.8 | 4.5 | 4.6 | 4.7 | 4.9 | 4.8 |
| January 2016 | 4.7 | 4.4 | 4.6 | 4.7 | 5.0 | 4.9 |
| Interest Rates (Percent) | | | | | | |
| Three-month Treasury bills | | | | | | |
| August 2016 | 0.3 | 0.7 | 1.4 | 1.5 | 2.8 | 2.2 |
| January 2016 | 0.7 | 1.6 | 2.5 | 2.3 | 3.2 | 2.8 |
| Ten-year Treasury notes | | | | | | |
| August 2016 | 1.8 | 2.3 | 2.8 | 2.7 | 3.6 | 3.2 |
| January 2016 | 2.8 | 3.5 | 3.8 | 3.7 | 4.1 | 3.9 |
| Tax Bases (Percentage of GDP) | | | | | | |
| Wages and salaries | | | | | | |
| August 2016 | 44.3 | 44.4 | 44.4 | 44.3 | 44.3 | 44.3 |
| January 2016 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Domestic economic profits | | | | | | |
| August 2016 | 8.7 | 8.4 | 8.2 | 8.1 | 7.3 | 7.7 |
| January 2016 | 8.7 | 8.6 | 8.3 | 8.3 | 7.5 | 7.8 |

Source: Congressional Budget Office.

GDP = gross domestic product; PCE = personal consumption expenditures.

a. Nominal GDP adjusted to remove the effects of inflation.

b. Excludes prices for food and energy.

c. The consumer price index for all urban consumers.

d. The employment cost index for wages and salaries of workers in private industries.

### Revisions to Projected Output

CBO's lower estimates of economic output reflect new economic data, analysis, and developments that occurred between late December 2015 (when the agency completed its January forecast) and early July 2016 (when the agency completed its current forecast). The largest revision was to CBO's estimate of potential output during the 2016–2026 period. The agency also lowered its estimate of output growth over the next few years.

**Growth in Potential Output.** In CBO's current projections, the growth of real potential GDP is about 0.1 percentage point per year lower, on average, than it was in the January projections. The downward revision stemmed from slower projected growth in the potential labor force (which is discussed below in "Revisions to Labor Market Projections"), in potential TFP, and in capital services in the nonfarm business sector.

CBO still expects potential TFP growth in the nonfarm business sector to quicken from its unusually slow pace of 0.8 percent since 2008, but the agency now expects it to reach an average pace of about 1.2 percent per year during the 2021–2026 period, down from the nearly 1.4 percent that was projected in January. Over the entire 2016–2026 period, CBO now projects that potential TFP will grow at an annual average rate of 1.1 percent, down from the previous projection of 1.2 percent.

Most of the revision to potential TFP reflects newly released data that indicate significantly weaker growth during late 2015 and early 2016 than CBO had previously expected. As a result, CBO now projects that TFP growth will begin to recover later, and end up lower, than it projected in January.

In addition, CBO made two changes to its method of estimating potential output that had a modest effect on projected potential TFP. First, to estimate underlying trends in key economic variables—that is, trends excluding the effects of business cycle fluctuations—CBO now uses its primary measure of labor market slack, the employment shortfall, rather than the difference between the actual and natural rates of unemployment. That change suggests slightly slower growth of potential TFP. Second, CBO reassessed the relative contributions of labor and capital services to output to make them more consistent with recent trends and the estimates of other leading researchers. That change likewise suggests that potential TFP will grow less than CBO expected in January.

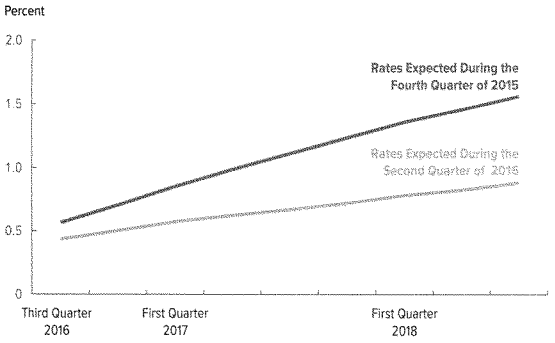
CBO made several changes that lowered its projection of capital services, on net. One, the slower projected growth in potential TFP, reduced estimated demand for capital goods and hence the growth of capital services. That effect is responsible for much of the decline since January in the projected growth of capital services over the 2021–2026 period. Another change also slightly reduced the projected growth of capital services—modestly lower projected growth in the potential number of hours worked in the nonfarm business sector. Two further changes that affect capital services offset each other. CBO projects more federal borrowing than it did in January, which would crowd out funds available for private investment and thus dampen the growth of capital services; but it also projects less demand for investment overseas, which would lead to more net inflows of foreign financial capital to the United States, offsetting the crowding-out effect on private investment of the increased federal borrowing.

**Growth in Output From 2016 to 2020.** Surprisingly weak growth in output since late 2015 led CBO to reassess the economy's underlying momentum. As a result, the agency reduced its projections of growth in output over the next few years. CBO currently projects that real GDP will grow by 1.9 percent per year, on average, from 2016 through 2020; in January, the projection was 2.2 percent. That change reflects a downward revision to the average projected growth rate of consumer spending over the period, a revision that was made because CBO now expects income to grow more slowly over the next few years than it did in January. Furthermore, business fixed investment has grown at a surprisingly weak pace in recent quarters, which has contributed to a lower projection for the growth of investment during this year. CBO also revised upward its projections of net exports for the 2016–2020 period, but that revision was not large enough to offset the other reductions; in fact, it was mainly attributable to the downward revision in GDP growth, which slows projected growth in demand for imports.[25] And CBO slightly revised upward the

25. CBO also accounted for the United Kingdom's vote to leave the European Union, which is expected to affect net exports in the United States through an expected strengthening of the dollar over the next few quarters. The effect is projected to be slight, however.

**Figure 2-13.**

**Expectations in the Futures Market for the Federal Funds Rate**




Participants in the futures market for the federal funds rate have reduced their expectations for that rate since the fourth quarter of 2015.

Source: Congressional Budget Office, using data from Bloomberg.

The federal funds rate is the interest rate that financial institutions charge each other for overnight loans of their monetary reserves.

Data are quarterly averages derived from monthly futures prices.

projected growth of government consumption and investment over the 2016–2020 period.

### Revisions to Projected Interest Rates

CBO anticipates that interest rates will be significantly lower, on average, over the coming decade than it projected in January. In CBO's projections for 2016 through 2020, the interest rate on 3-month Treasury bills is 0.8 percentage points lower, on average, than it was in January, and the rate on 10-year Treasury notes (which is partly determined by the expected future rates for 3-month bills) is 1 percentage point lower, on average. From 2021 through 2026, the projections of those two rates are 0.4 percentage points lower and 0.5 percentage points lower, on average, than they were in January.

The revisions for the 2016–2020 period reflect recent economic data and events that point to slower domestic and foreign GDP growth than was expected in January. The growth of real U.S. GDP during the first half of 2016 was slower than CBO and many analysts had expected. That slower growth, coupled with uncertainty about the effects of the United Kingdom's vote to leave the European Union, led CBO to expect that the Federal Reserve would raise the federal funds rate more slowly than projected in January. Probably for similar reasons, participants in the market for federal funds futures have substantially reduced their expectations for the rise in the federal funds rate as well (see Figure 2-13). Federal Reserve officials and private-sector forecasters have also lowered their projections of the federal funds rate.

As a result of its revision to the projected federal funds rate, CBO revised downward its projections for the interest rates on 3-month Treasury bills and, to a smaller degree, on 10-year Treasury notes over the next several years. In addition, CBO considered the impact of low foreign interest rates, which have made U.S. Treasury securities an attractive investment to a greater degree than CBO projected in January. CBO expects that added demand to dampen the rise in interest rates through 2020.

The revisions for the 2021–2026 period primarily reflect upward revisions to the agency's projections of two of the factors that affect interest rates over the longer run—the added return that investors require for holding risky assets, and net inflows of capital from other countries. In CBO's assessment, a higher-than-expected premium on risky assets has partly accounted for the surprisingly low rate of interest so far this year: When that premium is high, it increases relative demand for Treasury securities,

boosting their prices and thereby lowering their interest rates. The agency anticipates that the higher-than-expected premium will persist to some extent through 2026. CBO's higher projection of net inflows of capital from other countries (measured as a percentage of GDP) is the result of the agency's expectation that foreign economies will grow more slowly than was projected in January. Larger net inflows of capital would make more funds available for borrowing and thus reduce interest rates in the United States.

In addition to lowering its projections of short-term and long-term interest rates, CBO lowered its projection of the term premium. The term premium during the 2021–2026 period, calculated as the difference between the 10-year rate and the 3-month rate, fell from 0.9 percentage points in CBO's January forecast to 0.8 percentage points in the current projection. That downward revision was based on an analysis of the relationship over the past two decades between rates of return on Treasury securities and rates of return on equities in the United States, as well as on an analysis of the factors underlying the surprisingly low level of interest rates since January. As in January, CBO expects some of the factors currently suppressing the term premium to dissipate over the 2016–2020 period, but it does not expect the term premium to reach the levels that it achieved before the late 1990s. That is mainly because CBO expects investors to keep wanting Treasury securities as protection against adverse economic outcomes and unexpectedly low inflation. CBO expects those factors to lead to greater demand for long-term securities than it did in January.

### Revisions to Labor Market Projections

Since January, CBO has lowered its projections of the labor force participation rate, and consequently of the size of the labor force, for most of the years through 2026. For the next two years, however, CBO projects that the labor force participation rate will be about two-tenths of a percentage point higher than was projected in January. That upward revision reflects recently released data showing that participation was slightly higher than CBO projected earlier in the year; CBO expects the recent uptick to persist for the next two years. After 2018, however, CBO's projection of the labor force participation rate is roughly one-third of a percentage point lower than it was in January. That change is due to a downward revision to the estimated potential labor force participation rate over that period: After reassessing trends, CBO revised downward the expected long-term participation of less educated workers and young workers.

CBO's current projection of the unemployment rate between 2021 and 2026 is slightly lower than it was in January, the result of a downward revision to the natural rate of unemployment from 2015 through 2026. That revision, in turn, was made after CBO more carefully assessed how demographic trends have affected that rate. The share of younger workers in the working-age population has declined over the past two decades; less educated workers have been participating in the labor market at lower rates; and younger workers and less educated workers are more likely to be unemployed than older workers and workers with more education. CBO expects those trends to persist over the next decade. Consequently, the agency has reduced its estimate of the economywide natural rate of unemployment by one-tenth of a percentage point from 2015 through 2026, so that the rate reaches 4.7 percent in 2026. That revision led CBO to lower its estimate of the unemployment rate in 2026 from 5.0 percent to 4.9 percent.

CBO's current projection of growth in nonfarm payroll employment during most of the 2016–2026 period is lower than it was in January. That revision results in modestly lower projected growth in the potential number of hours worked in the nonfarm business sector. The revision stems from the downward revision in projected GDP growth, because slower growth in GDP implies slower growth in demand for labor and employment.

### Revisions to Projected Inflation

CBO projects that consumer price inflation through 2026 will be very similar to what was projected in January. Core inflation is expected to be slightly higher in 2016 than it was in CBO's January projection, largely because of faster expected growth in housing costs throughout the year. However, the current projection of overall inflation in consumer prices in 2016 is roughly the same as the one in the January forecast, because lower projections of food and energy prices offset the higher projection of housing costs. Inflation as measured by the GDP price index is expected to be slightly lower in the second half of 2016, in 2017, and in 2018 than CBO expected in January, largely because of lower-than-expected growth in the price of U.S. exports. CBO's projections of inflation in later years have changed little since January.

## Comparison With Other Economic Projections

The agency's projections of the growth of real GDP, the unemployment rate, inflation, and interest rates in 2016 and 2017 are generally similar to the *Blue Chip* consensus—the average of roughly 50 forecasts by private-sector economists that was published in the August 2016 *Blue Chip Economic Indicators*. CBO anticipates a slightly stronger economy in the short run, projecting real GDP growth that is higher than the middle two-thirds of *Blue Chip* forecasts for 2016 and that is at the top of that two-thirds span for 2017 (see Figure 2-14). The agency also expects a slightly stronger labor market, projecting an unemployment rate in both years that is lower than the *Blue Chip* consensus but within the middle two-thirds of the forecasts. CBO's projections of the interest rates on 3-month Treasury bills and on 10-year Treasury notes also fall within the middle two-thirds of the *Blue Chip* forecasts.

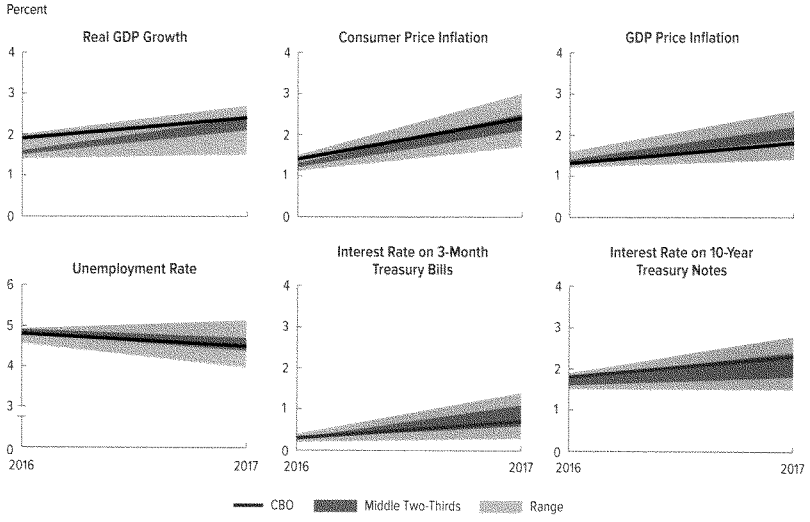
CBO projects faster growth of real output over the coming year than do most of the Federal Reserve officials whose forecasts were reported at the June 2016 meeting of the Federal Open Market Committee (see Figure 2-15). The Federal Reserve reports three sets of forecasts: a median, a range, and a central tendency. The median is calculated from forecasts made by the members of the Board of Governors of the Federal Reserve System and the presidents of the Federal Reserve Banks. The range is based on the highest and lowest of those forecasts. The central tendency is the range without the three highest and three lowest projections. CBO's projections of the growth of real GDP are within the central tendency in 2016 and 2018 and slightly above it in 2017. CBO's projections of the unemployment rate and inflation are within the central tendency in all three years.

CBO's projections probably differ from those of the other forecasters at least partly because of differences in the economic news available when the forecasts were completed and differences in the economic and statistical models used. In addition, other forecasters may be assuming changes in federal policies that are not included in CBO's projections, which are based on current law.

**Figure 2-14.**

## Comparison of Economic Projections by CBO and *Blue Chip* Forecasters

CBO's projections are generally similar to those by *Blue Chip* forecasters, although CBO projects faster growth of real GDP this year and next.




Sources: Congressional Budget Office; Wolters Kluwer, *Blue Chip Economic Indicators* (August 10, 2016).

The full range of forecasts from the *Blue Chip* is based on the highest and lowest of the roughly 50 forecasts. The middle two-thirds of that range omits the top one-sixth of the forecasts and the bottom one-sixth.

Real GDP is the output of the economy adjusted to remove the effects of inflation. Consumer price inflation is calculated with the consumer price index for all urban consumers. Real GDP growth and inflation rates are measured from the average of one calendar year to the next.

The unemployment rate is a measure of the number of jobless people who are available for work and are actively seeking jobs, expressed as a percentage of the labor force. The unemployment rate and interest rates are calendar year averages.

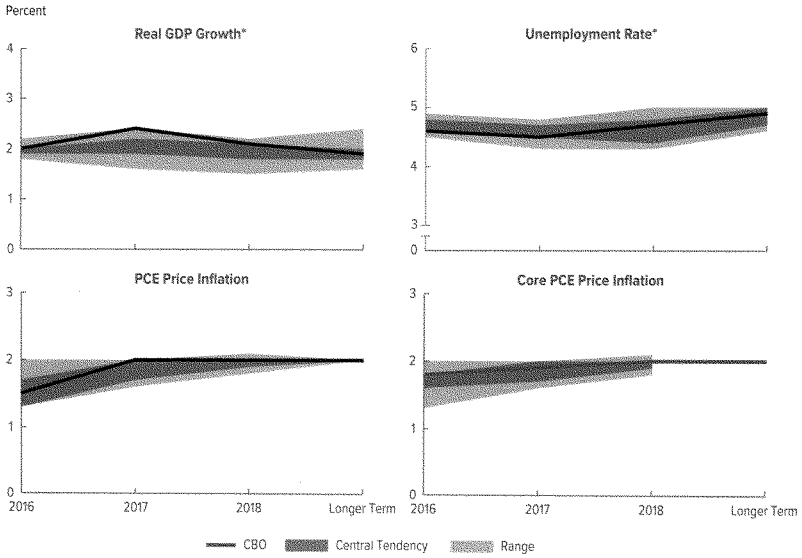
Data are annual.

GDP = gross domestic product.

Figure 2-15.

## Comparison of Economic Projections by CBO and Federal Reserve Officials

CBO's projections of real GDP growth, the unemployment rate, and inflation are generally within the central tendency of forecasts by Federal Reserve officials.




Sources: Congressional Budget Office; Board of Governors of the Federal Reserve System, "Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents, June 2016" (June 15, 2016), http://go.usa.gov/xTWAW (PDF, 165 KB).

The full range of forecasts from the Federal Reserve is based on the highest and lowest of the 17 projections by the Board of Governors and the president of each Federal Reserve Bank. The central tendency is that range without the 3 highest and 3 lowest projections—roughly speaking, the middle two-thirds of the range.

For CBO, longer-term projections are values for 2026. For the Federal Reserve, longer-term projections are described as the value at which each variable would settle under appropriate monetary policy and in the absence of further shocks to the economy.

Real GDP is the output of the economy adjusted to remove the effects of inflation.

The unemployment rate is a measure of the number of jobless people who are available for work and are actively seeking jobs, expressed as a percentage of the labor force.

The core PCE price index excludes prices for food and energy.

Data are annual. Real GDP growth and inflation rates are measured from the fourth quarter of one calendar year to the fourth quarter of the next. The unemployment rate is a fourth-quarter value.

GDP = gross domestic product; PCE = personal consumption expenditures.

[*Data for longer-term values corrected on August 24, 2016]

APPENDIX

A

# Changes to CBO's Baseline Since March 2016

If no new laws affecting this year's spending and revenues are enacted, the budget deficit for fiscal year 2016 will total $590 billion, the Congressional Budget Office estimates. That amount is $56 billion higher than CBO projected in March 2016, when the agency last updated its baseline (see Table A-1).[1] CBO now estimates that both revenues and outlays for the year will be lower than it projected in March—revenues by $87 billion (or 3 percent) and outlays by $31 billion (or 1 percent).

The cumulative deficit in CBO's baseline for the 2017–2026 period is now $8.6 trillion, or $712 billion less than the $9.3 trillion the agency projected previously. CBO estimates that, under current law, outlays for the period will be lower than the amount projected in March by $1,143 billion (or 2 percent) and revenues will be lower by $431 billion (or 1 percent).

Projected deficits for 2016 and 2017 are now larger than previously estimated—each by 0.3 percent of gross domestic product (GDP). But the projected deficits for 2018 through 2026 are smaller—by 0.3 percent or 0.4 percent of GDP in most years. All told, projected deficits in the new baseline average 3.8 percent of GDP from 2017 through 2026; in the March baseline, they averaged 4.0 percent of GDP.

Updates to CBO's economic forecast (most notably, reductions in the projections of interest rates and GDP) produced the largest changes over the 2017–2026 period, reducing both projected outlays and revenues. However, technical changes to revenue and outlay projections (changes attributable to neither newly enacted legislation nor a revised economic forecast) offset a small portion of those economic changes.

Since CBO prepared its March baseline projections, a number of pieces of legislation that affect the budget have been enacted, but the budgetary effects of those new laws are expected to be very small—less than $1 billion over the 2017–2026 period.

## Economic Changes

CBO's revised economic forecast incorporates updated projections of interest rates, inflation, GDP, the unemployment rate, and other economic variables that affect federal outlays and revenues (see "Comparison With CBO's January 2016 Projections" in Chapter 2). In light of those updates, CBO boosted its estimate of the deficit for 2016 by $20 billion and decreased its projection of the cumulative deficit for the 2017–2026 period by $736 billion, primarily because a significant reduction in projected interest rates led the agency to project lower outlays over that period. (The effect on the deficit of the lower interest rates was partially offset by a reduction in CBO's revenue projections that stemmed from the slower economic growth that the agency now anticipates.)

### Changes to Projections of Outlays

On the basis of its updated economic projections, CBO reduced its estimate of outlays for 2016 by $4 billion and its projection for the 2017–2026 period by $1.2 trillion. A $998 billion reduction in estimated net interest costs—primarily the result of the agency's expectation of lower interest rates throughout the period—accounts for most of that 10-year change.

**Net Interest.** As a result of the marked reduction in interest rates in CBO's updated forecast, the agency decreased its estimate of net interest costs for 2016 by $4 billion and its projection of those costs for the 2017–2026 period by $905 billion.[2]

1. See Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384.

2. Although nearly all of that $905 billion decrease in net interest costs is attributable to the reduction in interest rates, a very small portion arises from a reduction in CBO's forecast of inflation over the baseline period and a corresponding decrease in its estimate of interest costs associated with Treasury inflation-protected securities and savings bonds, which are tied to the rate of inflation.

Table A-1.

## Changes in CBO's Baseline Projections of the Deficit Since March 2016

Billions of Dollars

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Deficit in CBO's March 2016 Baseline | -534 | -550 | -549 | -710 | -798 | -890 | -1,043 | -1,080 | -1,094 | -1,226 | -1,343 | -3,497 | -9,283 |
| **Legislative Changes** | | | | | | | | | | | | | |
| Changes in Revenues | 0 | * | * | * | * | * | * | * | * | * | * | * | 1 |
| Changes in Outlays | 0 | * | * | * | * | * | * | * | * | * | * | * | * |
| **Increase (-) or Decrease in the Deficit From Legislative Changes** | **0** | * | * | * | * | * | * | * | * | * | * | * | **1** |
| **Economic Changes** | | | | | | | | | | | | | |
| Changes in Revenues | | | | | | | | | | | | | |
| Individual income taxes | -16 | -31 | -22 | -13 | -10 | -12 | -15 | -19 | -24 | -28 | -32 | -88 | -206 |
| Corporate income taxes | -12 | -17 | -21 | -22 | -25 | -28 | -30 | -29 | -27 | -25 | -23 | -112 | -247 |
| Payroll taxes | -1 | -1 | -2 | -4 | -6 | -8 | -10 | -12 | -16 | -20 | -24 | -22 | -104 |
| Federal Reserve remittances | 5 | 22 | 32 | 27 | 17 | 11 | 9 | 9 | 8 | 8 | 8 | 109 | 151 |
| Other | -1 | -2 | -2 | -2 | -2 | -2 | -2 | -2 | -2 | -3 | -3 | -11 | -23 |
| All Changes in Revenues | -24 | -29 | -17 | -14 | -25 | -39 | -47 | -54 | -61 | -68 | -74 | -124 | -428 |
| Changes in Outlays | | | | | | | | | | | | | |
| Mandatory outlays | | | | | | | | | | | | | |
| Social Security | 0 | -1 | -2 | -3 | -5 | -5 | -6 | -6 | -6 | -8 | -9 | -16 | -50 |
| Medicare | 0 | -1 | -2 | -2 | -4 | -3 | -4 | -5 | -4 | -6 | -6 | -12 | -38 |
| Higher education | 2 | -5 | -5 | -4 | -4 | -3 | -3 | -2 | -2 | -2 | -2 | -21 | -33 |
| Other | -1 | -1 | -1 | -2 | -3 | -4 | -5 | -5 | -6 | -6 | -6 | -12 | -40 |
| Subtotal, mandatory | 1 | -9 | -11 | -12 | -15 | -15 | -17 | -18 | -18 | -22 | -24 | -62 | -161 |
| Discretionary outlays | 0 | * | * | * | * | -1 | -1 | -1 | -1 | -1 | -1 | -2 | -5 |
| Net interest outlays | | | | | | | | | | | | | |
| Effect of rates and inflation | -4 | -36 | -65 | -88 | -95 | -98 | -100 | -102 | -104 | -106 | -110 | -383 | -905 |
| Debt service | * | * | * | -2 | -5 | -8 | -10 | -13 | -16 | -18 | -21 | -15 | -93 |
| Subtotal, net interest | -4 | -36 | -66 | -91 | -100 | -106 | -110 | -115 | -119 | -124 | -131 | -398 | -998 |
| All Changes in Outlays | -4 | -45 | -77 | -102 | -116 | -122 | -128 | -134 | -138 | -147 | -156 | -461 | -1,164 |
| **Increase (-) or Decrease in the Deficit From Economic Changes** | **-20** | **16** | **60** | **88** | **90** | **82** | **80** | **80** | **77** | **79** | **82** | **337** | **736** |

Continued

For every year of the baseline period, CBO expects the interest rates on all Treasury securities to be significantly lower than those used in the March baseline. The decrease is more pronounced in the near term. In CBO's August baseline, the interest rate on 3-month Treasury bills grows from an average of 0.6 percent in fiscal year 2017 to 2.8 percent in 2026; in the March baseline, the 3-month rate averaged 1.4 percent in 2017 and 3.2 percent in 2026. Similarly, CBO significantly lowered its estimates of the interest rate on 10-year Treasury notes. Whereas in March the 10-year rate was projected to average 3.3 percent in fiscal year 2017 and 4.1 percent in 2026, it is now projected to average 2.2 percent in 2017 and 3.6 percent in 2026.

Because the updated economic forecast reduced federal deficits and thus federal borrowing in CBO's baseline, the agency lowered its projections of debt-service costs accordingly. Those lower debt-service costs account for an additional $93 billion reduction in interest costs.

**Mandatory Spending.** CBO's projections of mandatory spending for 2017 to 2026 are now $161 billion lower than reported in March because of revisions to the economic forecast. The largest revisions were made to estimates of outlays for Social Security, Medicare, and higher education.

*Social Security.* Because projections of inflation and wage growth were lowered, outlays in the baseline for Social Security over the 2017–2026 period decreased by

Billions of Dollars

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total 2017-2021 | Total 2017-2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Technical Changes** | | | | | | | | | | | | | |
| Changes in Revenues | | | | | | | | | | | | | |
| Individual income taxes | -57 | -46 | -33 | -23 | -20 | -11 | -4 | -1 | 3 | 3 | 4 | -133 | -128 |
| Corporate income taxes | -17 | -19 | -8 | 1 | 6 | 7 | 6 | 6 | 7 | 7 | 7 | -13 | 20 |
| Payroll taxes | 16 | 10 | 10 | 9 | 7 | 7 | 7 | 8 | 8 | 9 | 11 | 43 | 86 |
| Other | -5 | -3 | 2 | 1 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 18 |
| All Changes in Revenues | -63 | -58 | -29 | -12 | -5 | 5 | 12 | 16 | 20 | 22 | 25 | -99 | -4 |
| Changes in Outlays | | | | | | | | | | | | | |
| Mandatory outlays | | | | | | | | | | | | | |
| Medicare | * | * | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 6 | 27 |
| Earned income and child tax credits | -2 | -2 | -2 | -2 | -3 | -3 | -3 | -3 | -3 | -3 | -3 | -12 | -27 |
| Other | -11 | 2 | 1 | -11 | -2 | -1 | -1 | -1 | -1 | -1 | -1 | -10 | -15 |
| Subtotal, mandatory | -13 | * | * | -13 | -3 | -2 | -1 | -1 | * | 1 | 2 | -16 | -15 |
| Discretionary outlays | -15 | 1 | * | * | * | * | * | * | * | * | * | 2 | 2 |
| Net interest outlays | | | | | | | | | | | | | |
| Debt service | * | 1 | 3 | 4 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 18 | 47 |
| Other | * | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -2 | -2 | -2 | -4 | -13 |
| Subtotal, net interest | * | * | 2 | 3 | 4 | 4 | 5 | 4 | 4 | 3 | 4 | 14 | 34 |
| All Changes in Outlays | -27 | 2 | 2 | -9 | 2 | 3 | 4 | 4 | 4 | 4 | 6 | * | 21 |
| **Increase (-) or Decrease in the Deficit From Technical Changes** | **-36** | **-61** | **-31** | **-3** | **-6** | **3** | **9** | **13** | **16** | **18** | **19** | **-99** | **-25** |
| **All Changes** | | | | | | | | | | | | | |
| **Increase (-) or Decrease in the Deficit** | **-56** | **-44** | **29** | **85** | **84** | **85** | **89** | **93** | **94** | **97** | **101** | **239** | **712** |
| Deficit in CBO's August 2016 Baseline | -590 | -594 | -520 | -625 | -714 | -806 | -954 | -988 | -1,000 | -1,128 | -1,243 | -3,258 | -8,571 |
| **Memorandum:** | | | | | | | | | | | | | |
| Changes in Revenues | -87 | -87 | -45 | -26 | -30 | -34 | -35 | -38 | -41 | -46 | -49 | -223 | -431 |
| Changes in Outlays | -31 | -42 | -74 | -112 | -114 | -119 | -124 | -131 | -134 | -143 | -150 | -461 | -1,143 |

Source: Congressional Budget Office.

* = between -$500 million and $500 million.

$50 billion (or 0.4 percent). Whereas CBO had projected that Social Security beneficiaries would receive a 0.7 percent cost-of-living adjustment (COLA) in January 2017, the agency now expects that the COLA will be 0.6 percent. CBO lowered its projection of COLAs for several other years in the 2017–2026 period by 0.1 percentage point.

*Medicare.* Under current law, payment rates for much of the fee-for-service portion of Medicare (including, for example, rates for hospital care and services provided by home health agencies and skilled nursing facilities) are updated automatically. Those updates are tied to changes in the prices of the labor, goods, and services that health care providers purchase after those prices have been adjusted to remove the effects of economywide gains in productivity over a 10-year period. (Gains in productivity represent the ability to produce the same output using fewer inputs, such as hours of labor, than before.) In general, CBO projects that input prices will not increase as much over the period as it had previously estimated. Consequently, the agency now anticipates lower payment rates for Medicare services than it did in March—a change that decreases outlays in CBO's baseline by $38 billion (or 0.5 percent) over the 2017–2026 period.

*Higher Education.* Changes in CBO's economic forecast led to a downward revision of $33 billion in projected outlays for higher education over the 2017–2026 period. Within that category, the largest changes were to student

loans: Net outlays for student loans over the 10-year period are $36 billion lower in CBO's current baseline than in the March baseline. Consistent with the procedures set forth in the Federal Credit Reform Act of 1990, CBO's estimates of outlays for the student loan program in a given year represent the costs of all federal loans disbursed in that year. Those costs are measured as the present value of the future cash flows associated with the loans, calculated using the Treasury's borrowing rates to discount those cash flows.[3] Because CBO significantly lowered its estimate of those rates for the 2017–2026 period, its estimate of the present value of future receipts to the government associated with student loans (in the form of loan repayments, interest payments, and default recoveries) increased, lowering the projected subsidy costs of those loans. (Using the Federal Credit Reform Act's present-value method, CBO estimates that, on balance, the student loan program produces net negative subsidies—that is, net gains to the government. The lower discount rates result in estimates that indicate even greater net negative subsidies.)

*Other Mandatory Spending.* Changes in the economic outlook led CBO to reduce its projections of outlays for other mandatory programs for the 2017–2026 period by $40 billion. The largest downward revisions were for the Supplemental Nutrition Assistance Program ($16 billion) and unemployment compensation ($10 billion).

**Discretionary Spending.** To project discretionary spending, CBO assumes that most annual appropriations through 2021 will adhere to the caps and automatic spending reductions established in the Budget Control Act of 2011 (Public Law 112-25), as amended, and that appropriations for 2022 to 2026 will grow from the 2021 amounts at the rate of inflation. (Certain discretionary appropriations, such as those for overseas contingency operations, are not constrained by the caps. In CBO's baseline, those appropriations grow in future years at the rate of inflation.) As a result, CBO's downward revision to its projection of inflation rates reduced discretionary budget authority and outlays primarily in those years after the caps are set to expire. In total, discretionary spending in the current baseline is $5 billion less over the 2017–2026 period than in the March baseline.

3. The present value of a flow of revenues or outlays over time is a single number that expresses that flow in terms of an equivalent lump sum received or paid at a specific time. The present value of a given set of cash flows depends on the rate of interest (known as the discount rate) that is used to translate them into current dollars.

## Changes to Projections of Revenues

Revisions to economic projections since January led the agency to reduce its revenue estimates for 2016 by $24 billion (or 0.7 percent) and its projections for 2017 through 2026 by $428 billion (or 1.0 percent). The reduction for 2016 stems primarily from CBO's lower projection of business fixed investment, which brought down the agency's projections of taxable realizations of capital gains by individuals and corporations. In addition, CBO reduced its estimate of corporate tax receipts for the year mainly because profits were smaller in 2015 than expected and because the agency lowered its projection of profits for 2016.

The $428 billion reduction in projected revenues for 2017 through 2026 stems mostly from CBO's expectation that GDP and the associated taxable incomes—mainly wages and salaries and corporate profits—will grow more slowly than previously anticipated. That change in expectations resulted largely from newly released data and changes in projection methods regarding productivity growth. CBO lowered its projections of domestic corporate profits for the 2017–2026 period by $748 billion (or about 4 percent); that revision was the primary cause of the $247 billion (or 6 percent) reduction in projected revenues from corporate income taxes.[4] In addition, CBO reduced its projections of wages and salaries for the next 10 years by $937 billion (or about 1 percent); that change was the primary cause of the reduction in projected revenues from individual income and payroll taxes.[5] Overall, CBO lowered its projections of individual income tax revenues by $206 billion

4. As defined by the national income and product accounts, domestic corporate profits include the profits of the Federal Reserve System, which are remitted to the Treasury and are not subject to the corporate income tax. CBO has increased its projections of the Federal Reserve's profits as a result of lowering its projections of interest rates. Excluding those profits, CBO's projections of domestic corporate profits over the 2017–2026 period are now about 5 percent lower, which is more consistent with the 6 percent reduction in the projections of corporate income tax revenues than is the change indicated by the 4 percent reduction in the measure that includes the Federal Reserve's profits.

5. Partially offsetting the effect of lower wages and salaries on projections of revenues from individual income taxes was a much smaller increase in projected revenues from that source resulting from lower projections of interest rates. Although the lower interest rates reduced CBO's estimates of personal interest income, they also had the more significant effect of reducing projected mortgage interest deductions from individual income taxes, which would boost payments of individual income taxes.

(or 1 percent) and of payroll taxes by $104 billion (or 1 percent). In addition, changes in the economic outlook caused CBO to lower its projection of receipts from certain other sources by $23 billion. That decline largely reflects lower projections of customs duties that result from the downward revision to projected imports.

Partially offsetting those reductions, CBO has increased its projections of remittances by the Federal Reserve over the next 10 years by $151 billion, largely as a result of the agency's lower forecast of interest rates. Those lower rates reduce the amount of interest that the Federal Reserve is expected to pay on the reserves that depository institutions hold on deposit with it, thereby increasing its expected profits and corresponding remittances to the Treasury. (The changes in projected interest rates also affect taxable personal and business income, but the resulting effects on revenues are smaller than the effect on remittances by the Federal Reserve.)

Over the next decade, the overall reduction in the revenue projections that is attributable to economic factors (1.0 percent) is smaller than the reduction in the projections of GDP (1.8 percent). That difference is the main reason why the new projections for revenues as a percentage of GDP after 2018 are slightly higher than those CBO released in March.[6] For example, in CBO's new baseline projections, revenues in 2026 are 18.5 percent of GDP, whereas they were 18.2 percent in the March projections. Technical factors, which are discussed in the next section, also contributed to the upward revisions to the projections of revenues relative to GDP over the 2021–2026 period.

## Technical Changes

Technical updates to CBO's estimates of revenues and outlays—that is, revisions that stem from something other than new legislation or changes in economic projections—resulted in a net increase in the projected deficit for both the current year and for the 2017–2026 period. Lower estimates of revenues—partially offset by lower estimates of outlays—drive the $36 billion increase in the deficit estimated for the current year. For technical reasons, CBO's current projections of outlays over the 10-year period are higher in almost all years than they were in the March baseline, whereas its projections of revenues are now lower each year through 2020 and then higher from 2021 through 2026. Together, those changes increase projected deficits for the 2017–2026 period by a total of $25 billion.

### Changes to Projections of Outlays

Because of technical changes, CBO lowered its projections of outlays for 2016 by $27 billion. That downward revision results from lower estimates of outlays for both mandatory and discretionary spending. But for the 2017–2026 period, projected outlays increased by $21 billion, mainly because of higher projections of debt-service costs that were partially offset by lower projected mandatory spending.

**Mandatory Spending.** Technical revisions related to mandatory programs decreased estimated outlays for the current year by $13 billion. For the 2017–2026 period, technical updates lowered projected mandatory spending by $15 billion.

*Medicare.* On the basis of actual outlays through early July, CBO now estimates that net Medicare spending for Part A (hospital insurance) and Part D (prescription drugs) in fiscal year 2016 will exceed its previous projections. In addition, this baseline incorporates final administrative actions taken by the Department of Health and Human Services regarding systems that operate on a fiscal year basis (such as setting hospital inpatient payments for the coming year) and improvements to CBO's modeling of Part A spending. In total, CBO increased its estimate of net spending for Medicare for 2016 by less than $1 billion (or 0.1 percent) and its projections for the 2017–2026 period by $27 billion (or 0.3 percent).

*Earned Income and Child Tax Credits.* CBO decreased its projection of outlays for two refundable tax credits—the earned income and child tax credits—for the 2017–2026 period by a total of $27 billion. (Projected outlays for the earned income tax credit are lower than they were in the March baseline by about $20 billion, and projected outlays for the child tax credit are down by about $8 billion.) The portions of those credits that exceed taxpayers' income tax liabilities are classified as outlays, and the portions that reduce filers' tax payments are classified as reductions in revenues. Outlays for those credits have

6. The increase in revenues relative to GDP after 2018 in CBO's baseline stems partly from higher projections of combined wages and profits relative to GDP, which in turn results in part from data from the beginning of calendar year 2016 showing a greater percentage drop (relative to the previous economic forecast) in GDP than in the sum of wages and profits. Also, lower projected interest rates tend to boost projections of Federal Reserve remittances relative to GDP.

been lower this year than CBO expected. That development is responsible for much of the downward revision to projected outlays in subsequent years.

*Other Mandatory Spending.* Technical changes lowered estimated outlays for other mandatory programs for 2016 by $11 billion. The largest contributors to that net change were reduced estimates of payments to the Treasury from Fannie Mae and Freddie Mac and of outlays for Medicaid and for health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

For 2017 through 2026, technical changes caused CBO to decrease its projection of outlays for other mandatory programs by a net amount of $15 billion, most of which is related to updated projections for Social Security's Disability Insurance program.

**Discretionary Spending.** Technical adjustments to CBO's projections for several discretionary programs reduced estimated outlays for the current year by $15 billion but had little effect on projections for later years, increasing projected outlays for the 2017–2026 period by $2 billion. The biggest changes to estimates for 2016 stem from an $8 billion decrease in projected outlays for certain defense programs (primarily in the areas of operations, procurement, and military personnel) and from a $2 billion decrease in estimated outlays for veterans' programs (mostly for medical services).

**Net Interest.** Because of technical updates, CBO's estimate of net interest outlays over the 2017–2026 period is $34 billion higher than it was in March. That upward revision stems from an increase in CBO's projections of debt-service costs that is partially offset by other factors.

CBO raised projected debt-service costs for the next 10 years by a total of $47 billion. Most of that revision is the result of two factors that increased projected borrowing but do not contribute directly to the budget deficit:

- CBO increased its estimate of the Treasury's end-of-year cash balance for 2016 to nearly $305 billion on the basis of an expectation that the department will maintain a higher balance than in previous years. With projected deficits, larger cash balances can be maintained only by borrowing more. Therefore, CBO added $70 billion to the amount of borrowing that it estimated in March.
- CBO also increased its estimate of the amount that will need to be borrowed to finance student loans and other credit programs over the 2017–2026 period by $35 billion.

Smaller downward revisions, largely stemming from reduced estimates of interest payments to certain intragovernmental accounts, lowered projected net interest outlays by $13 billion. (However, because such payments are intragovernmental, those revisions have no net effect on projected deficits.)

### Changes to Projections of Revenues

For various technical reasons, CBO lowered its projections of revenues for 2016 by $63 billion (or almost 2 percent). Tax collections from individual and corporate income taxes have been lower in recent months than CBO expected in March—and by much more than is explained by currently available economic data. The main factors responsible for the shortfall will be clearer when additional data from tax returns and other sources become available.

All told, technical changes caused CBO to lower its revenue projections for 2017 through 2020 and to increase its projections for 2021 through 2026—for a net reduction of $4 billion over the 2017–2026 period. The reductions for 2017 through 2020 occurred because the agency expects that the effects of low collections in 2016 will continue but gradually dissipate: Taxable income and effective tax rates (total taxes as a percentage of total income) can fluctuate significantly from year to year, but they tend to return to more typical levels when adjusted for changes in tax law and for longer-term trends in income components and demographics. Other technical factors, in isolation, caused CBO to raise its revenue projections for all years between 2017 and 2026. The most significant factors contributing to those increases—the effects of which CBO expects to persist—arise from new data from the Social Security Administration that indicate a higher payroll tax base in 2015 than was anticipated and new data from corporate income tax returns on certain deductions and income. For 2017 through 2020, however, those increases were more than offset by the reductions in projected revenues stemming from the lingering effects of tax collections that have been weaker than expected.

APPENDIX

B

# CBO's Economic Projections for 2016 Through 2026

The tables in this appendix expand on the information in Chapter 2 by showing the Congressional Budget Office's economic projections for each year from 2016 through 2026 (by calendar year in Table B-1 and by fiscal year in Table B-2). For years after 2020, CBO did not attempt to forecast the frequency or size of fluctuations in the business cycle. Instead, the values shown in these tables for 2021 through 2026 mainly reflect CBO's projections of underlying trends in key variables, such as the size of the labor force, the number of hours worked, capital investment, and productivity. CBO also considers the effects on those variables of the federal tax and spending policies specified in current law.

Table B-1.

## CBO's Economic Projections, by Calendar Year

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Percentage Change From Year to Year | | | | | | |
| Gross Domestic Product | | | | | | | | | | | |
| Real[a] | 1.9 | 2.4 | 2.2 | 1.7 | 1.6 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 1.9 |
| Nominal | 3.2 | 4.2 | 4.0 | 3.7 | 3.6 | 3.9 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Inflation | | | | | | | | | | | |
| PCE price index | 1.2 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Core PCE price index[b] | 1.7 | 1.8 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Consumer price index[c] | 1.4 | 2.4 | 2.3 | 2.3 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| Core consumer price index[b] | 2.3 | 2.2 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.4 |
| GDP price index | 1.3 | 1.8 | 1.8 | 1.9 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 |
| Employment Cost Index[d] | 2.6 | 3.0 | 3.3 | 3.3 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| | | | | | Annual Average | | | | | | |
| Unemployment Rate (Percent) | 4.8 | 4.5 | 4.6 | 4.8 | 5.0 | 5.0 | 5.0 | 5.0 | 4.9 | 4.9 | 4.9 |
| Payroll Employment (Monthly change, in thousands)[e] | 175 | 123 | 24 | 14 | 37 | 61 | 64 | 66 | 65 | 65 | 65 |
| Interest Rates (Percent) | | | | | | | | | | | |
| Three-month Treasury bills | 0.3 | 0.7 | 1.4 | 2.2 | 2.7 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| Ten-year Treasury notes | 1.8 | 2.3 | 2.8 | 3.1 | 3.3 | 3.5 | 3.6 | 3.6 | 3.6 | 3.6 | 3.6 |
| Tax Bases (Percentage of GDP) | | | | | | | | | | | |
| Wages and salaries | 44.3 | 44.4 | 44.4 | 44.4 | 44.4 | 44.3 | 44.3 | 44.3 | 44.3 | 44.2 | 44.2 |
| Domestic economic profits | 8.7 | 8.4 | 8.2 | 7.9 | 7.6 | 7.4 | 7.3 | 7.3 | 7.3 | 7.4 | 7.4 |
| Tax Bases (Billions of dollars) | | | | | | | | | | | |
| Wages and salaries | 8,204 | 8,562 | 8,911 | 9,235 | 9,569 | 9,938 | 10,329 | 10,737 | 11,160 | 11,599 | 12,056 |
| Domestic economic profits | 1,610 | 1,621 | 1,644 | 1,654 | 1,642 | 1,658 | 1,696 | 1,760 | 1,838 | 1,929 | 2,031 |
| Nominal GDP (Billions of dollars) | 18,528 | 19,302 | 20,083 | 20,819 | 21,567 | 22,410 | 23,302 | 24,239 | 25,215 | 26,236 | 27,295 |

Source: Congressional Budget Office.

GDP = gross domestic product; PCE = personal consumption expenditures.

a. Nominal GDP adjusted to remove the effects of inflation.

b. Excludes prices for food and energy.

c. The consumer price index for all urban consumers.

d. The employment cost index for wages and salaries of workers in private industries.

e. Calculated as the monthly average of the fourth-quarter-to-fourth-quarter change in payroll employment.

Table B-2.

**CBO's Economic Projections, by Fiscal Year**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Percentage Change From Year to Year | | | | | |
| Gross Domestic Product | | | | | | | | | | | |
| Real[a] | 1.9 | 2.3 | 2.3 | 1.9 | 1.6 | 1.8 | 2.0 | 2.0 | 2.0 | 2.0 | 1.9 |
| Nominal | 3.1 | 4.0 | 4.1 | 3.7 | 3.6 | 3.8 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Inflation | | | | | | | | | | | |
| PCE price index | 0.9 | 1.8 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Core PCE price index[b] | 1.6 | 1.8 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Consumer price index[c] | 1.0 | 2.2 | 2.3 | 2.3 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| Core consumer price index[b] | 2.2 | 2.2 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.4 |
| GDP price index | 1.2 | 1.7 | 1.8 | 1.8 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 |
| Employment Cost Index[d] | 2.4 | 2.9 | 3.2 | 3.3 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| | | | | | | Annual Average | | | | | |
| Unemployment Rate (Percent) | 4.9 | 4.5 | 4.5 | 4.8 | 5.0 | 5.0 | 5.0 | 5.0 | 4.9 | 4.9 | 4.9 |
| Payroll Employment | | | | | | | | | | | |
| (Monthly change, in thousands)[e] | 192 | 144 | 44 | 11 | 29 | 58 | 63 | 66 | 66 | 65 | 65 |
| Interest Rates (Percent) | | | | | | | | | | | |
| Three-month Treasury bills | * | 0.6 | 1.2 | 2.0 | 2.6 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| Ten-year Treasury notes | 1.9 | 2.2 | 2.7 | 3.0 | 3.3 | 3.5 | 3.6 | 3.6 | 3.6 | 3.6 | 3.6 |
| Tax Bases (Percentage of GDP) | | | | | | | | | | | |
| Wages and salaries | 44.2 | 44.3 | 44.4 | 44.4 | 44.4 | 44.4 | 44.3 | 44.3 | 44.3 | 44.2 | 44.2 |
| Domestic economic profits | 8.6 | 8.5 | 8.2 | 8.0 | 7.7 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.4 |
| Tax Bases (Billions of dollars) | | | | | | | | | | | |
| Wages and salaries | 8,121 | 8,470 | 8,828 | 9,154 | 9,482 | 9,843 | 10,230 | 10,634 | 11,053 | 11,488 | 11,940 |
| Domestic economic profits | 1,586 | 1,617 | 1,638 | 1,653 | 1,645 | 1,652 | 1,684 | 1,743 | 1,819 | 1,904 | 2,005 |
| Nominal GDP (Billions of dollars) | 18,367 | 19,102 | 19,895 | 20,637 | 21,372 | 22,193 | 23,075 | 24,001 | 24,967 | 25,977 | 27,027 |

Source: Congressional Budget Office.

GDP = gross domestic product; PCE = personal consumption expenditures; * = between zero and 0.05 percent.

a. Nominal GDP adjusted to remove the effects of inflation.

b. Excludes prices for food and energy.

c. The consumer price index for all urban consumers.

d. The employment cost index for wages and salaries of workers in private industries.

e. Calculated as the monthly average of the fourth-quarter-to-fourth-quarter change in payroll employment.

# List of Tables and Figures

## Tables



## Figures

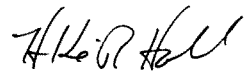
**Figures (Continued)**

# About This Document

This volume is one of a series of reports on the state of the budget and the economy that the Congressional Budget Office issues each year. It satisfies the requirement of section 202(e) of the Congressional Budget Act of 1974 for CBO to submit to the Committees on the Budget periodic reports about fiscal policy and to provide baseline projections of the federal budget. In keeping with CBO's mandate to provide objective, impartial analysis, this report makes no recommendations.

CBO's Panel of Economic Advisers commented on an early version of the economic forecast underlying this report. Members of the panel are Katharine Abraham, Alan Auerbach, Olivier Blanchard, Markus Brunnermeier, Mary Daly, Steven Davis, Robert Hall, Jan Hatzius, Anil Kashyap, Donald Kohn, Nellie Liang, Gregory Mankiw, Emi Nakamura, Jonathan Parker, Adam Posen, James Poterba, Valerie Ramey, Brian Sack, Robert Shimer, Justin Wolfers, and Mark Zandi. Howard Gruenspecht, Simon Johnson, Kevin Logan, and Peter Petri attended the panel's meeting as guests. Although CBO's outside advisers provided considerable assistance, they are not responsible for the contents of this report.

The CBO staff members who contributed to this report—by preparing the economic, revenue, and spending projections; writing the report; reviewing, editing, fact-checking, and publishing it; compiling the supplemental materials posted along with it on CBO's website (www.cbo.gov/publication/51908); and providing other support—are listed on the following pages.



Keith Hall
Director

August 2016

## Economic Projections

The economic projections were prepared by the Macroeconomic Analysis Division, with contributions from analysts in other divisions. That work was supervised by Jeffrey Werling, Robert Arnold, and Kim Kowalewski.

| | |
|---|---|
| Robert Arnold | Inflation, house prices |
| Daniel Fried | Net exports, exchange rates, energy prices |
| Edward Gamber | Interest rates, monetary policy, current-quarter analysis |
| Ronald Gecan | Energy prices |
| Mark Lasky | Business investment, housing |
| Jason Levine | Financial markets |
| Joshua Montes | Labor markets |
| Jeffrey Perry | Financial markets |
| John Seliski | Federal, state, and local government spending and revenues |
| Robert Shackleton | Potential output, productivity |
| Adam Staveski | Housing, model and data management |
| Christopher Williams | Consumer spending, incomes |

## Revenue Projections

The revenue projections were prepared by the Tax Analysis Division, supervised by Mark Booth, Ed Harris, and Janet Holtzblatt. In addition, the staff of the Joint Committee on Taxation provided valuable assistance.

| | |
|---|---|
| Paul Burnham | Retirement income |
| Nathaniel Frentz | Federal Reserve System earnings, customs duties, miscellaneous fees and fines |
| Pamela Greene | Corporate income taxes |
| Peter Huether | Excise taxes |
| Shannon Mok | Estate and gift taxes, refundable tax credits |
| Kevin Perese | Tax modeling, Federal Reserve System earnings |
| Molly Saunders-Scott | International taxation, business taxation |
| Kurt Seibert | Payroll taxes, depreciation, tax modeling |
| Joshua Shakin | Individual income taxes, refundable tax credits |
| Naveen Singhal | Capital gains realizations, tax modeling |

## Spending Projections

The spending projections were prepared by the Budget Analysis Division, with contributions from analysts in other divisions; that work was supervised by Theresa Gullo, Holly Harvey, Sam Papenfuss, Tom Bradley, Kim Cawley, Chad Chirico, Sheila Dacey, Jeffrey Holland, Sarah Jennings, and Adam Wilson of the Budget Analysis Division, as well as by Jessica Banthin of the Health, Retirement, and Long-Term Analysis Division and Damien Moore of the Financial Analysis Division.

*Defense, International Affairs, and Veterans' Affairs*

| | |
|---|---|
| Kent Christensen | Defense (projections, working capital funds, operation and maintenance, procurement, scorekeeping) |
| Sunita D'Monte | International affairs |
| Ann Futrell | Veterans' health care and employment training services, international food assistance |
| Raymond Hall | Defense (research and development, stockpile sales, atomic energy, Navy procurement) |
| William Ma | Defense (operation and maintenance, procurement, compensation for radiation exposure and energy employees' occupational illness, other defense programs) |
| David Newman | Defense (military construction and family housing, military activities in Afghanistan), veterans' housing and education benefits, reservists' education benefits |
| David Rafferty | Military retirement |
| Dawn Sauter Regan | Defense (military personnel) |
| Matthew Schmit | Military health care |
| Dwayne Wright | Veterans' compensation and pensions, other benefits for disabled veterans |

*Health*

| | |
|---|---|
| Susan Yeh Beyer | Health insurance coverage |
| Julia Christensen | Food and Drug Administration, prescription drugs |
| Kate Fritzsche | Health insurance marketplaces, other programs |
| Daniel Hoople | Medicaid, Children's Health Insurance Program |
| Lori Housman | Medicare |
| Jamease Kowalczyk | Medicare |
| Sean Lyons | Health insurance coverage |
| Paul Masi | Medicare, Federal Employees Health Benefits program |
| Sarah Masi | Health insurance marketplaces, other programs |
| Kevin McNellis | Medicare |

| | |
|---|---|
| *Health (Continued)* | |
| Alexandra Minicozzi | Health insurance coverage |
| Eamon Molloy | Health insurance coverage |
| Andrea Noda | Medicaid prescription drugs, long-term care, Public Health Service |
| Romain Parsad | Health insurance coverage |
| Allison Percy | Health insurance coverage |
| Lisa Ramirez-Branum | Medicaid, health insurance coverage, Health Resources and Services Administration |
| Lara Robillard | Medicare |
| Robert Stewart | Medicaid, Children's Health Insurance Program, Indian Health Service |
| Ellen Werble | Prescription drugs, Public Health Service, National Institutes of Health |
| Zoe Williams | Medicare |
| Rebecca Yip | Medicare Part D, prescription drugs, Public Health Service |
| *Income Security and Education* | |
| Christina Hawley Anthony | Unemployment insurance, training programs, Administration on Aging, Smithsonian Institution, arts and humanities |
| Elizabeth Cove Delisle | Housing assistance |
| Kathleen FitzGerald | Supplemental Nutrition Assistance Program and other nutrition programs |
| Jennifer Gray | Social Services Block Grant, support programs for children and families, child nutrition and other nutrition programs |
| Justin Humphrey | Student loans, higher education |
| Leah Koestner | Elementary and secondary education, Pell grants |
| Alec MacMillen | Child Care and Development Block Grant, refugee assistance |
| Susanne Mehlman | Temporary Assistance for Needy Families, Child Support Enforcement program, foster care, child care programs, Low Income Home Energy Assistance Program |
| Noah Meyerson | Old-Age and Survivors Insurance, Social Security trust funds, Pension Benefit Guaranty Corporation |
| Emily Stern | Disability Insurance, Supplemental Security Income |

| | |
|---|---|
| *Natural and Physical Resources* | |
| Tiffany Arthur | Agriculture |
| Marin Burnett | Administration of justice, science and space exploration, recreational resources |
| Megan Carroll | Energy, air and water transportation |
| Mark Grabowicz | Administration of justice, Postal Service |
| Kathleen Gramp | Energy, Outer Continental Shelf receipts, spectrum auction receipts, Orderly Liquidation Fund |
| Jeff LaFave | Conservation and land management, other natural resources, Federal Housing Administration and other housing credit programs |
| James Langley | Agriculture |
| Matthew Pickford | General government, legislative branch |
| Sarah Puro | Highways, mass transit, Amtrak, deposit insurance, credit unions |
| Stephen Rabent | Commerce, Small Business Administration, Universal Service Fund |
| Robert Reese | Community and regional development, Federal Emergency Management Agency, Bureau of Indian Affairs |
| Jon Sperl | Pollution control and abatement |
| Aurora Swanson | Water resources, Fannie Mae and Freddie Mac |
| *Other Areas and Functions* | |
| Shane Beaulieu | Computer support |
| Barry Blom | Federal pay, monthly Treasury data |
| Joanna Capps | Appropriation bills (Labor, Health and Human Services, and Education; Legislative Branch; State and Foreign Operations) |
| Meredith Decker | Other interest, debt limit |
| Karen Dinh | Computer support |
| Avi Lerner | Troubled Asset Relief Program, automatic budget enforcement and sequestration, interest on the public debt |
| Amber Marcellino | Federal civilian retirement, historical data |
| Virginia Myers | Appropriation bills (Commerce, Justice, and Science; Financial Services and General Government) |
| Jeffrey Perry | Fannie Mae and Freddie Mac, Federal Housing Administration |
| Dan Ready | Various federal retirement programs, national income and product accounts, federal pay |

*Other Areas and Functions (Continued)*

| | |
|---|---|
| Mitchell Remy | Fannie Mae and Freddie Mac, Federal Housing Administration |
| Mark Sanford | Appropriation bills (Agriculture and Food and Drug Administration; Defense) |
| Esther Steinbock | Appropriation bills (Energy and Water Development; Military Construction and Veterans Affairs; Transportation and Housing and Urban Development) |
| J'nell Blanco Suchy | Appropriation bill (Interior), authorization bills |
| Patrice Watson | Database system administrator |
| Adam Wilson | Appropriation bill (Homeland Security) |

## Writing

Christina Hawley Anthony wrote the summary. Barry Blom wrote Chapter 1, with assistance from Nathaniel Frentz and Joshua Shakin. Edward Gamber and Charles Whalen wrote Chapter 2. Amber Marcellino wrote Appendix A, with assistance from Pamela Greene. Claire Sleigh compiled Appendix B.

## Reviewing, Editing, Fact-Checking, and Publishing

Wendy Edelberg, Jeffrey Kling, and Robert Sunshine reviewed the report. The editing and publishing were handled by CBO's editing and publishing group, supervised by John Skeen, and the agency's web team, supervised by Deborah Kilroe.

Christine Bogusz, Loretta Lettner, Bo Peery, and Benjamin Plotinsky edited the report; Maureen Costantino and Jeanine Rees prepared it for publication; and Robert Dean, Annette Kalicki, Adam Russell, and Simone Thomas published it on CBO's website.

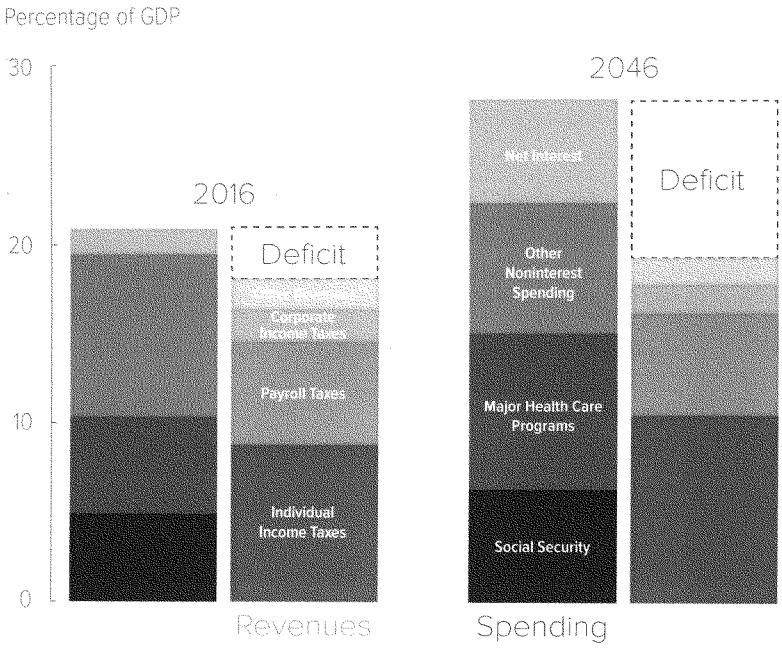
Zachary Byrum, Meredith Decker, Ann Futrell, Peter Huether, Alec MacMillen, David Newman, Robert Reese, Claire Sleigh, Adam Staveski, and Zoe Williams fact-checked the report.

Peter Huether, Dan Ready, Claire Sleigh, and Adam Staveski compiled supplemental data, which are posted with this report on the agency's website. Jeanine Rees and Simone Thomas coordinated the presentation of those materials.

CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

CBO

# The 2016 Long-Term Budget Outlook




JULY 2016

# Notes

The Congressional Budget Office's extended baseline shows the budget's long-term path under most of the same assumptions that the agency uses, in accordance with statutory requirements, when constructing its 10-year baseline. In particular, both baselines incorporate the assumptions that current law generally remains the same but that some mandatory programs are extended after their authorizations lapse and that spending for Medicare and Social Security continues as scheduled even if their trust funds are exhausted.

Unless otherwise indicated, the years referred to in most of this report are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end. In Chapters 6 and 7, budgetary values, such as the ratio of debt or deficits to gross domestic product, are presented on a fiscal year basis, whereas economic variables, such as gross national product or interest rates, are presented on a calendar year basis.

Numbers in the text, tables, and figures may not add up to totals because of rounding. Also, some values are expressed as fractions to indicate numbers rounded to amounts greater than a tenth of a percentage point.

As referred to in this report, the Affordable Care Act comprises the Patient Protection and Affordable Care Act and the health care provisions of the Health Care and Education Reconciliation Act of 2010, as affected by subsequent judicial decisions, statutory changes, and administrative actions.

Additional data—including the data underlying the figures in this report, supplemental budget projections, and the demographic and economic variables underlying those projections—are posted along with the report on CBO's website.

# Contents

# Summary

If current laws governing taxes and spending did not change, the United States would face steadily increasing federal budget deficits and debt over the next 30 years, according to projections by the Congressional Budget Office. Federal debt held by the public, which was equal to 39 percent of gross domestic product (GDP) at the end of fiscal year 2008, has already risen to 75 percent of GDP in the wake of a financial crisis and a recession. In CBO's projections, that debt rises to 86 percent of GDP in 2026 and to 141 percent in 2046—exceeding the historical peak of 106 percent that occurred just after World War II. The prospect of such large debt poses substantial risks for the nation and presents policymakers with significant challenges.

## Why Are Projected Deficits Rising?

In CBO's projections, deficits rise during the next three decades because the government's spending grows more quickly than its revenues do (see Summary Figure 1). In particular, spending grows for Social Security, the major health care programs (primarily Medicare), and interest on the government's debt.

Much of the spending growth for Social Security and the major health care programs results from the aging of the population: As members of the baby-boom generation age and as life expectancy continues to increase, the percentage of the population age 65 or older is anticipated to grow sharply, boosting the number of beneficiaries of those programs. By 2046, projected spending for those programs for people 65 or older accounts for about half of all federal noninterest spending.

The remainder of the projected growth in spending for Social Security and the major health care programs is driven by health care costs per beneficiary, which are projected to increase more quickly than GDP per person (after the effects of aging and other demographic changes are removed). CBO projects that those health care costs will rise—though more slowly than in the past—in part because of the effects of new medical technologies and rising personal income.

The federal government's net interest costs are projected to rise sharply as a percentage of GDP for two main reasons. The first and most important is that interest rates are expected to be higher in the future than they are now, making any given level of debt more costly to finance. The second reason is the projected increase in deficits: The larger they are, the more the government will need to borrow.

Mandatory spending other than spending on Social Security and the major health care programs—such as spending for federal employees' pensions and for various income security programs—is projected to decline as a percentage of GDP, as is discretionary spending. (Mandatory spending is generally governed by provisions of permanent law, whereas discretionary spending is controlled by annual appropriation acts.) The projected decline in the latter stems largely from the caps on discretionary funding that are set in law for the next several years.

The modest projected growth in revenues relative to GDP over the next three decades is attributable to increases in individual income tax receipts. Those receipts are projected to grow mainly because CBO anticipates that income will rise more quickly than the price indexes that are used to adjust tax brackets; as a result, more income will be pushed into higher tax brackets over time. Combined receipts from all other sources are projected to decline as a percentage of GDP.

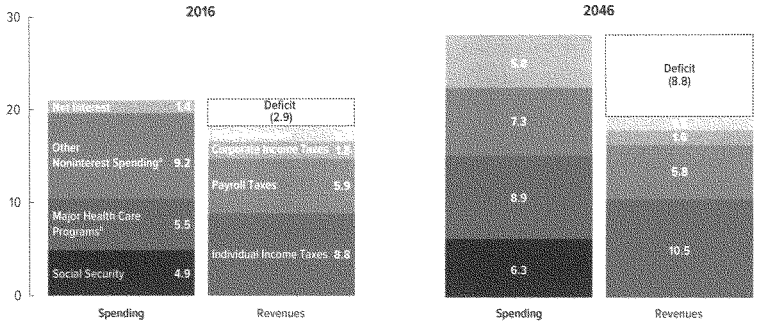
## How Does CBO Make Its Long-Term Budget Projections?

CBO's long-term projections start with the agency's 10-year projections of spending and revenues, which combine information about many spending programs and tax provisions with data about broader trends in the population and the economy. The 10-year projections follow the assumptions that current laws governing taxes and spending will generally remain the same in the future, but that some mandatory programs will be extended after their authorizations lapse and that spending for Medicare and Social Security will continue as scheduled even if their trust funds are exhausted. CBO

**Summary Figure 1.**

**The Federal Budget Under the Extended Baseline**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

a. Consists of all federal spending other than that for Social Security, the major health care programs, and net interest.

b. Consists of spending on Medicare (net of offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

c. Consists of excise taxes, remittances to the Treasury from the Federal Reserve System, customs duties, estate and gift taxes, and miscellaneous fees and fines.

makes those assumptions to conform to statutory requirements. Because current laws surely *will* change, CBO's projections are not predictions of what the agency thinks will actually happen. Rather, they give lawmakers a baseline to measure the effects of proposed legislation against. They are therefore called baseline projections.

CBO's detailed long-term projections, produced once each year, follow those assumptions as well. Because they extend the baseline into the following two decades, they are called the extended baseline. Some parts of the extended baseline, such as projections of Social Security spending and individual income taxes, incorporate detailed estimates of how people would be affected by particular elements of programs or the tax code. Other projections reflect past trends and CBO's assessment of how those trends would evolve if current laws generally remained unchanged. Between the annual publications of the detailed analyses, CBO sometimes updates its long-term projections using simplified methods, as it did most recently in January 2016.

CBO's budget projections are built upon its projections of the economy (which incorporate, among many other things, the estimated effects of fiscal policy under current laws). CBO anticipates that if current laws generally did not change, real GDP—that is, GDP with the effects of inflation excluded—would increase by 2.1 percent per year, on average, over the next 30 years. Over the past 50 years, by contrast, the annual increase in real GDP has averaged 2.9 percent. Projected GDP growth is slower than that largely because of retiring baby boomers, falling birthrates, and declining participation in the labor force. Projected growth is also held down by the effects of fiscal policy under current law—above all, by the reduction in private investment that is projected to result from rising federal debt.

## How Have Those Projections Changed Over the Past Year?

The previous edition of this volume, *The 2015 Long-Term Budget Outlook*, was published in June 2015 and showed projections through 2040. CBO now projects debt in 2040 that, measured as a share of GDP, is 15 percentage points higher than it projected last year, mostly because of changes in tax law.

When CBO updated its long-term projections in January 2016, it did so through 2046. The agency's projection of

debt in 2046 is now 14 percentage points lower than it was in January, primarily because CBO now expects interest rates to be lower than previously anticipated.

## How Uncertain Are Those Projections?

If current laws governing taxes and spending remained generally the same, CBO estimates, debt would nearly double as a percentage of GDP over the next 30 years. That projection is very uncertain, however, so the agency examined how it would change if four key inputs—labor force participation, productivity in the economy, interest rates on federal debt, and health care costs per person—were different from their levels in the extended baseline. The resulting projections show that debt in 2046, measured as a share of GDP, could be much larger or smaller than it is in the extended baseline, ranging from nearly twice the largest amount recorded in U.S. history to slightly less than that record high. Even at the low end of that range, debt would be higher than it is now.

Other factors, such as an economic depression, a major war, or unexpected changes in fertility, immigration, or mortality rates, could also affect the trajectory of debt. Taking all factors into account, CBO concludes that despite the considerable uncertainty of long-term projections, debt as a percentage of GDP would probably be greater—in all likelihood, much greater—than it is today if current laws remained generally unchanged.

## What Might the Consequences Be If Current Laws Remained Unchanged?

Large and growing federal debt over the coming decades would hurt the economy and constrain future budget policy. The amount of debt that is projected in the extended baseline would reduce national saving and income in the long term; increase the government's interest costs, putting more pressure on the rest of the budget; limit lawmakers' ability to respond to unforeseen events; and increase the likelihood of a fiscal crisis, an occurrence in which investors become unwilling to finance a government's borrowing needs unless they are compensated with very high interest rates.

## What Would the Effects of Illustrative Changes to Current Laws Be?

To show how changes in law would affect the long-term fiscal imbalance, CBO took two approaches. First, it estimated how large changes in spending or revenues would have to be if lawmakers wished to achieve a chosen goal for federal debt held by the public. Second, the agency approached the issue from the other direction, estimating how two illustrative deficit-reduction paths would affect debt in 2046.

If lawmakers wanted to reduce debt in 2046 so that it equaled its average percentage of GDP over the past 50 years (39 percent), one way to achieve that result would be to cut noninterest spending, increase revenues, or do both by a total of 2.9 percent of GDP per year, starting in 2017. That would come to about $560 billion in 2017, or $6.7 trillion from 2017 through 2026. If instead they wanted debt in 2046 to equal its current percentage of GDP (75 percent), the necessary measures would be smaller, totaling 1.7 percent of GDP per year (about $330 billion in 2017 and $4.0 trillion through 2026). The longer lawmakers waited to act, the larger the necessary policy changes would become.

For the two illustrative deficit-reduction paths, CBO assumed that decreases in the deficit would be phased in over time rather than made as equal percentage changes in each year. In one path, cumulative deficits through 2026 would be about $2 trillion lower than under the extended baseline; in another, they would be about $4 trillion lower; and in both paths, deficits in subsequent years would be lower than in the baseline by the same percentage of GDP as in 2026. The first path would result in federal debt equal to 96 percent of GDP in 2046, and the second would result in federal debt equal to 55 percent of GDP in 2046.

## How Is This Report Arranged?

Chapter 1 of this report offers a broad overview of CBO's extended baseline projections, as well as an examination of the consequences of large and growing federal debt. Though the chapter necessarily touches on CBO's projections of spending and revenues, those subjects are explored at greater length in the next four chapters. Specifically, Chapter 2 discusses spending for Social Security, the single largest program in the federal budget; Chapter 3 addresses spending for the major health care programs, which together represent a still larger fraction of federal spending; Chapter 4 deals with other federal noninterest spending; and Chapter 5 discusses revenues.

The report proceeds in Chapter 6 to examine the illustrative budgetary paths mentioned above. Chapter 7 discusses the uncertainty of CBO's projections. And at the close of the report are two appendixes: Appendix A about the economic and demographic projections underlying the extended baseline, and Appendix B about the changes in CBO's long-term projections since June 2015.

CHAPTER

# 1

# The Long-Term Fiscal Imbalance

Over the past several years, federal budget deficits have steadily declined as the nation recovers from the financial crisis and 2007–2009 recession. However, the Congressional Budget Office projects that the budget deficit will rise this year. And if current laws generally remain unchanged, budget deficits as a share of the nation's output—its gross domestic product (GDP)—will grow over the next decade. As a result, federal debt held by the public would rise from its already high level—from 75 percent of GDP today to 86 percent by 2026, CBO projects. Beyond the next 10 years, the long-term budget outlook is projected to worsen further, with debt reaching 141 percent of GDP in 2046—the highest ever recorded (see Table 1-1).

The government's spending for Social Security and Medicare is a crucial factor in that outlook. Those programs benefit mostly the elderly, a group that has grown significantly and will continue to do so. Rising health care costs per person also will boost Medicare outlays. Therefore, spending for those programs is projected to rise substantially in the coming decades. By 2046, projected spending for those programs (as well as Medicaid spending) for people 65 or older accounts for about half of all federal noninterest spending. The government's interest costs also are projected to increase significantly, as interest rates rise from their unusually low levels and federal debt grows. Revenues are projected to increase, but much more slowly than spending, leading to larger budget deficits and rising debt.

In this report, CBO presents its projections of federal outlays, revenues, deficits, and debt for the next three decades and describes possible consequences of those projected budgetary outcomes. The projections are consistent with CBO's current 10-year economic projections, released in January 2016, and the agency's March 2016 budget projections.[1] These long-term projections extend most of the concepts underlying that baseline for the rest of the projection period and reflect the macroeconomic effects of fiscal policy over that period; hence, they constitute the *extended baseline*. In a change from last year, the extended baseline spans 30 years rather than 25—consistent with Congressional interest in projections over that period as delineated in the 2016 budget resolution.

CBO's 10-year and extended baseline projections are not meant to be predictions of budgetary outcomes. Rather, they represent CBO's best assessment of future revenues, spending, and deficits on the assumption that current laws generally remain unchanged.

## The Budget Outlook for the Next 10 Years

Federal debt held by the public ballooned in the past decade. Debt at the end of 2007 stood at 35 percent of GDP. But large deficits stemming from the 2007–2009 recession and the ensuing policy responses caused that debt to grow sharply over the next five years; by the end of 2015, federal debt had more than doubled, measuring 74 percent of GDP. That amount of debt is very high by historical standards. For comparison, debt held by the public has averaged 39 percent of GDP over the past 50 years. And debt has exceeded 70 percent of GDP during only one other period in U.S. history—from 1944 through 1950, because of the surge in federal spending during World War II (see Figure 1-1).

Although the budget deficit has declined each year since its peak of nearly 10 percent of GDP in 2009, it is on track to rise in relation to the size of the economy this year. CBO estimates that the deficit in 2016 will be nearly 3 percent of GDP. By the end of the year, federal debt held by the public is anticipated to creep up to 75 percent of GDP. Under current law, deficits and debt would remain close to those levels through 2018.

1. For information on the March baseline budget projections, see Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384. For information on the January 2016 economic projections, see Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), www.cbo.gov/publication/51129.

**Table 1-1.**

## Key Projections in CBO's Extended Baseline

Percentage of Gross Domestic Product

| | | Projected Annual Average | | |
|---|---|---|---|---|
| | 2016 | 2017–2026 | 2027–2036 | 2037–2046 |
| Revenues | | | | |
| Individual income taxes | 8.8 | 9.3 | 9.9 | 10.3 |
| Payroll taxes | 5.9 | 5.8 | 5.8 | 5.8 |
| Corporate income taxes | 1.8 | 1.7 | 1.6 | 1.6 |
| Other[a] | 1.7 | 1.3 | 1.3 | 1.4 |
| **Total Revenues** | **18.2** | **18.1** | **18.5** | **19.1** |
| Outlays | | | | |
| Mandatory | | | | |
| Social Security | 4.9 | 5.4 | 6.2 | 6.3 |
| Major health care programs[b] | 5.5 | 6.0 | 7.3 | 8.4 |
| Other | 2.8 | 2.6 | 2.4 | 2.1 |
| Subtotal | 13.2 | 14.0 | 15.8 | 16.9 |
| Discretionary | 6.5 | 5.6 | 5.2 | 5.2 |
| Net interest | 1.4 | 2.4 | 3.6 | 5.1 |
| **Total Outlays** | **21.1** | **22.0** | **24.7** | **27.2** |
| **Deficit** | **-2.9** | **-3.9** | **-6.2** | **-8.1** |
| **Debt Held by the Public at the End of the Period** | **75** | **86** | **110** | **141** |
| **Memorandum:** | | | | |
| Social Security | | | | |
| Revenues[c] | 4.5 | 4.4 | 4.4 | 4.4 |
| Outlays[d] | 4.9 | 5.4 | 6.2 | 6.3 |
| Contribution to the Federal Deficit[e] | -0.4 | -1.0 | -1.8 | -2.0 |
| Medicare | | | | |
| Revenues[c] | 1.5 | 1.6 | 1.5 | 1.5 |
| Outlays[d] | 3.8 | 4.1 | 5.5 | 6.6 |
| Offsetting Receipts | -0.6 | -0.7 | -0.9 | -1.2 |
| Contribution to the Federal Deficit[e] | -1.7 | -1.9 | -3.0 | -3.9 |
| Gross Domestic Product at the End of the Period (Trillions of dollars) | 18.5 | 27.7 | 41.3 | 62.3 |

Source: Congressional Budget Office.

This table satisfies a requirement specified in section 3111 of S. Con. Res. 11, the Concurrent Resolution on the Budget for Fiscal Year 2016.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

a. Consists of excise taxes, remittances to the Treasury from the Federal Reserve System, customs duties, estate and gift taxes, and miscellaneous fees and fines.

b. Consists of spending on Medicare (net of offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

c. Includes payroll taxes for the program other than those paid by the federal government on behalf of its employees (which are intragovernmental transactions). Also includes income taxes paid on Social Security benefits, which are credited to the trust funds.

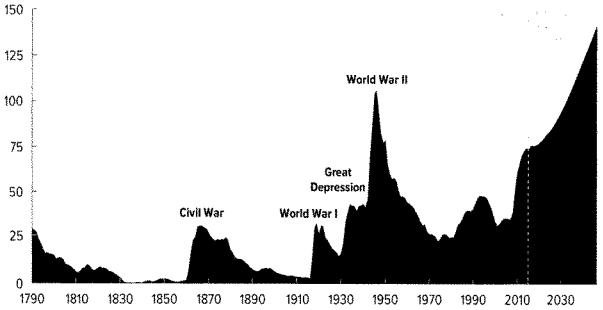
d. Does not include outlays related to administration of the program, which are discretionary.

e. The contribution to the deficit shown here differs from the change in the trust fund balance for the program. It does not include intragovernmental transactions, interest earned on balances, and outlays related to administration of the program.

**Figure 1-1.**

**Federal Debt Held by the Public**

Percentage of Gross Domestic Product




High and rising federal debt would reduce national saving and income in the long term; increase the government's interest payments, thereby putting more pressure on the rest of the budget; limit lawmakers' ability to respond to unforeseen events; and increase the likelihood of a fiscal crisis.

Source: Congressional Budget Office. For details about the sources of data used for past debt held by the public, see Congressional Budget Office, *Historical Data on Federal Debt Held by the Public* (July 2010), www.cbo.gov/publication/21728.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Later in the 10-year baseline period, CBO projects, deficits would be notably larger, approaching 5 percent of GDP if current laws generally remain unchanged. Deficits would rise because spending—particularly mandatory spending and interest costs—would grow faster than revenues.[2] As the population ages, spending on Social Security and Medicare, the two largest mandatory programs, is projected to rise as a percentage of GDP. People age 65 or older will account for 19 percent of the population in 2026, more than twice the share 50 years ago—increasing the number of beneficiaries for those programs. Rising health care costs per person also will drive up Medicare spending as a percentage of GDP. At the same time, interest rates are expected to rise from their present unusually low levels, sharply increasing interest payments on the government's debt. All told, federal spending is projected to rise from about 21 percent of GDP in 2016 to about 23 percent in 2026.

Meanwhile, rising revenues would keep pace with the economy and remain close to 18 percent of GDP over the next 10 years, largely reflecting offsetting movements in individual and corporate income taxes, payroll taxes, and remittances from the Federal Reserve. With a growing gap between spending and revenues, federal debt would rise to 86 percent of GDP by 2026.

## The Long-Term Budget Outlook

CBO's extended baseline projections show a substantial imbalance in the federal budget beyond the next 10 years, with revenues falling short of spending by steadily increasing amounts. As a result, federal debt as a share of GDP would reach unprecedented levels if current laws generally remain unchanged. Such high and rising debt would have serious consequences for the nation's budget and economy. Projections that far into the future are uncertain, but under a variety of plausible scenarios discussed later in this report, federal debt in 30 years would be significantly higher than it is today—twice as high under some scenarios.

### The Accumulation of Federal Debt

Debt held by the public represents the amount that the federal government has borrowed in financial markets by

2. In general, lawmakers determine spending for mandatory programs by setting eligibility rules, benefit formulas, and other parameters instead of by appropriating specific amounts each year. In that way, mandatory spending differs from discretionary spending, which is controlled by annual appropriation acts.

issuing Treasury securities to pay for its operations and activities.[3] Measuring debt as a percentage of GDP is useful for comparing amounts of debt in different years. That measure accounts for changes in price levels, population, output, and income—all of which affect the scope of potential budgetary adjustments. Examining whether debt as a percentage of GDP is increasing from its current high level is therefore a simple and meaningful way to assess the budget's sustainability.

Federal debt as a share of GDP is projected to rise over the long term in CBO's extended baseline. Beyond the next 10 years, CBO projects, the population will continue to age and health care costs per person will continue to rise. Consequently, under current law, more would be spent on the two largest federal programs that benefit the elderly: Social Security and Medicare. As interest rates and deficits rise, net interest costs also would increase substantially. As a result, the gap between total spending and revenues would continue to widen, leading to ever larger budget deficits and debt. In 2035, debt would surpass the peak of 106 percent of GDP recorded in 1946. By 2046, federal debt would reach 141 percent of GDP (see Figure 1-2)—more than three and a half times the average over the past five decades. Moreover, the debt would be on track to grow even larger.

Those projections are based on many factors that are hard to predict, which means that actual budgetary outcomes would undoubtedly differ from the projections even if current law did not change. When CBO varies four of those factors together—labor force participation, productivity in the economy, interest rates on federal debt, and health care costs per person—federal debt in 2046 is projected to range from 93 percent of GDP to 196 percent. (Chapter 7 discusses those projections.)

3. When the federal government borrows in financial markets, it competes with other participants for financial resources and, in the long term, crowds out private investment—reducing economic output and income. By contrast, federal debt held by trust funds and other government accounts represents internal transactions of the government and does not directly affect financial markets. (Together, that debt and debt held by the public make up gross federal debt.) For more discussion, see Congressional Budget Office, *Federal Debt and Interest Costs* (December 2010), www.cbo.gov/publication/21960. Several factors not directly included in the budget totals also affect the government's need to borrow from the public. Those factors include fluctuations in the government's cash balance as well as the cash flows reflected in the financing accounts used for federal credit programs.

## Consequences of a Large and Growing Federal Debt

Large and growing amounts of federal debt over the coming decades would have negative long-term consequences for the economy and would constrain future budget policy. In particular, the projected amounts of debt would:

- Reduce national saving and income in the long term;
- Increase the government's interest costs, putting more pressure on the rest of the budget;
- Limit lawmakers' ability to respond to unforeseen events; and
- Make a fiscal crisis more likely.

**Less National Saving and Lower Income.** Large federal budget deficits over the long term would reduce investment, resulting in lower national income and higher interest rates than would otherwise occur. If the government borrowed more, people would use more of their savings to buy Treasury securities rather than for private investment, thereby crowding out investment. Both the government and private borrowers would face higher interest rates to compete for savings, and those rates would strengthen people's incentive to save. However, the increased government borrowing would exceed the rise in saving by households and businesses. Therefore, national saving—total saving by all sectors of the economy—would decline, as would private investment and economic output. (Private investment would decline less than national saving because higher interest rates tend to attract more foreign capital to the United States and induce U.S. savers to keep more of their money at home.) With lower investment in capital goods—factories and computers, for example—workers would be less productive. Because productivity growth is the main driver of compensation growth, decreased investment also would reduce compensation per hour, offering people less incentive to work. CBO's extended baseline incorporates those economic effects of rising deficits (described in Chapter 6) as well as the feedback to the budget from those negative effects on the economy.

CBO estimates that the fiscal policies underlying the rising budget deficits in CBO's extended baseline would have a different effect in the short term. Over the next few years, those policies would boost overall demand for goods and services, thus increasing output and employment from what they would be with smaller deficits (or with no deficits). But the influence of greater demand would be temporary because stabilizing forces in the

economy tend to push output back in the direction of its potential (or maximum sustainable) level. Those forces would include the response of prices and longer-term interest rates to greater demand and actions by the Federal Reserve.

**Pressure on the Budget From Higher Interest Costs.** More federal borrowing and rising interest rates are both projected to push up net interest costs, making it harder to achieve any chosen target for lower budget deficits. (Net interest costs now are a small share of the economy because interest rates are exceptionally low.) CBO projects that as the economy moves back up toward its potential level, interest rates will rise to levels consistent with various factors such as productivity growth, the demand for investment, and federal deficits. Interest costs in the extended baseline are projected to be higher than they would be if deficits were smaller and interest rates were lower.

Because federal spending on net interest is projected to rise, achieving any chosen targets for lower budget deficits and debt would require higher taxes, lower spending on benefits and services, or both. Policies that achieved those goals could affect the economy and people's well-being. For example, if higher taxes came about through higher marginal tax rates (the rates that apply to an additional dollar of income), incentives to work and save would be reduced.[4] Alternatively, if lower spending was achieved at least in part by reducing federal investments, future output and income also would be reduced.[5] As another option, if lower spending was achieved by a reduction in benefits, households might increase their supply of labor to make up for lost income, thus increasing output.

**Reduced Ability to Respond to Domestic and International Problems.** With a relatively small outstanding debt, a government can readily borrow money to address unexpected events, such as recessions, financial crises, natural disasters, or wars. By contrast, with large outstanding debt, a government has less flexibility to address financial and economic crises, which can be costly.[6] A large amount of debt also can compromise a country's national security by constraining military spending in times of international crisis or by limiting the country's ability to prepare for such a crisis.

Before the most recent recession, when federal debt was below 40 percent of GDP, the government had some flexibility to respond to the financial crisis and severe recession with policy changes. Such changes included using taxpayer funds to stabilize the financial sector, increasing spending, and cutting taxes—even as lower output and income automatically resulted in sharply lower tax revenues and higher spending on income-support programs. All told, as a result of lower tax revenue and higher spending, federal debt as a percentage of GDP more than doubled from its 2007 level. If federal debt stayed the same or increased further in the future, undertaking similar policies in recessions or fiscal crises would be harder. Hence, such developments could have larger negative effects on the economy and on people's well-being. Moreover, the reduced financial flexibility and increased dependence on foreign investors that would accompany high and rising debt could weaken U.S. leadership in the international arena.

**Greater Chance of a Fiscal Crisis.** A large and continuously growing federal debt would make a fiscal crisis in the United States more likely.[7] Specifically, investors might become less willing to finance the government's borrowing unless they were compensated with high interest rates. As a result, interest rates on federal debt would abruptly become higher than the rates of return on other assets, dramatically increasing the cost of future government borrowing. In addition, that increase would reduce the market value of outstanding government bonds. If that happened, investors would lose money. The potential losses for mutual funds, pension funds, insurance companies, banks, and other holders of government debt might be large enough to cause some financial institutions to fail, creating a fiscal crisis. A fiscal crisis also can

4. See Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674.

5. For more information, see Congressional Budget Office, *The Macroeconomic and Budgetary Effects of Federal Investment* (June 2016), www.cbo.gov/publication/51628.

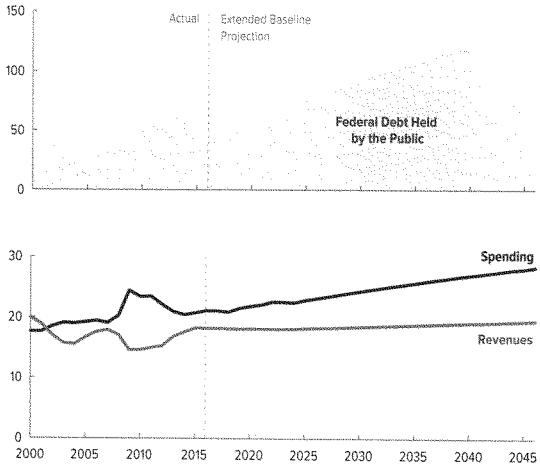
6. See, for example, Carmen M. Reinhart and Vincent R. Reinhart, "After the Fall," *Macroeconomic Challenges: The Decade Ahead* (Federal Reserve Bank of Kansas City, 2010), http://tinyurl.com/lntmp6j (PDF, 1.6 MB); and Carmen M. Reinhart and Kenneth S. Rogoff, "The Aftermath of Financial Crises," *American Economic Review*, vol. 99, no. 2 (May 2009), pp. 466–472, http://dx.doi.org/10.1257/aer.99.2.466. Also see Luc Laeven and Fabian Valencia, *Systemic Banking Crises Database: An Update*, Working Paper 12/163 (International Monetary Fund, June 2012), http://tinyurl.com/p2clvmy.

7. For more information, see Congressional Budget Office, *Federal Debt and the Risk of a Fiscal Crisis* (July 2010), www.cbo.gov/publication/21625.

Figure 1-2.

**Federal Debt, Spending, and Revenues**

Percentage of Gross Domestic Product




In CBO's extended baseline, **debt held by the public** rises . . .

. . . because growth in **total spending** outpaces growth in total revenues, resulting in larger budget deficits.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

GDP = gross domestic product.

Continued

make private-sector borrowing more expensive because uncertainty about the government's responses can reduce confidence in the viability of private-sector enterprises.

Unfortunately, no one can confidently predict whether or when such a fiscal crisis might occur in the United States. In particular, the debt-to-GDP ratio has no identifiable tipping point to indicate that a crisis is likely or imminent. All else being equal, however, the larger a government's debt, the greater the risk of a fiscal crisis.

The likelihood of such a crisis also depends on economic conditions. If investors expect continued economic growth, they are generally less concerned about the government's debt burden; conversely, substantial debt can reinforce more generalized concern about an economy. Thus, fiscal crises around the world often have begun during recessions—and, in turn, have exacerbated them.

If a fiscal crisis occurred in the United States, policymakers would have only limited—and unattractive—options for responding. The government would need to undertake some combination of three approaches: restructure the debt (that is, seek to modify the contractual terms of existing obligations), use monetary policy to raise inflation above expectations, and adopt large and abrupt spending cuts and tax increases.

## Illustrating the Magnitude of the Long-Term Fiscal Imbalance

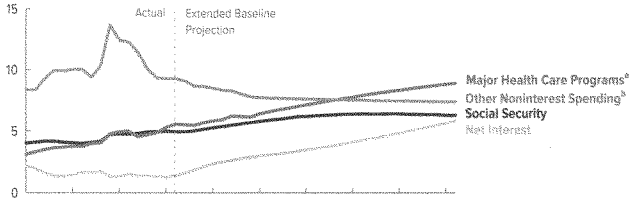
One way to measure the severity of the long-term fiscal imbalance is to assess the changes in revenues or noninterest spending that would be necessary to achieve a chosen goal for federal debt. CBO examined the implications of two illustrative goals: Trying to ensure that federal debt in some future year would be at the same percentage of GDP that it is today and trying to make

Figure 1-2. Continued

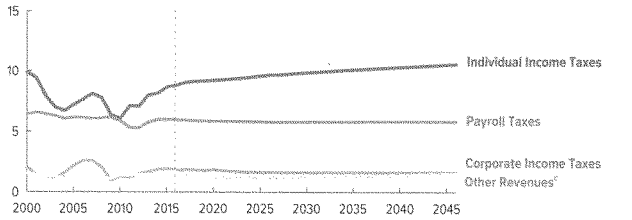
Federal Debt, Spending, and Revenues

Percentage of Gross Domestic Product

Certain components of spending—Social Security, the major health care programs, and net interest—are projected to rise in relation to GDP; other spending, in total, is projected to decline.




A projected boost in one type of revenues—individual income taxes—accounts for the rise in total revenues in relation to GDP. Receipts from all other sources, taken together, are projected to decline.




a. Consists of spending on Medicare (net of offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

b. Consists of all federal spending other than that for Social Security, the major health care programs, and net interest.

c. Consists of excise taxes, remittances to the Treasury from the Federal Reserve System, customs duties, estate and gift taxes, and miscellaneous fees and fines.

federal debt the same percentage of GDP in some future year that it has been, on average, over the past 50 years. Estimating the effects on federal debt of alternative paths for federal deficits offers another way to show the magnitude of the imbalance.

**The Magnitude of Policy Changes Needed to Meet Various Goals for Federal Debt.** The scale of changes in noninterest spending or revenues would depend on the target level of federal debt. Suppose that lawmakers set out to ensure that debt in 2046 would equal 75 percent of GDP (the current share). Cutting noninterest spending or raising revenues in each year, or both, beginning in 2017, by amounts totaling 1.7 percent of GDP (about $330 billion in 2017, or $1,000 per person) would achieve that result (see Figure 1-3).[8] Those amounts are calculated before macroeconomic feedback is taken into account.

The projected effects on debt include both the direct effects of the specified policy changes and the resulting macroeconomic feedback to both spending and revenues. That feedback reflects the positive economic effects of lowering the debt but no assumptions about the specifics of the policy changes.

Those policy changes, for example, could alter incentives to work and save, which would then affect overall economic output and have feedback effects on the federal

8. That estimate is similar to the fiscal gap estimated in last year's report. The key differences this year are that the positive macroeconomic effects of lowering the debt have been incorporated and that the period of analysis is now 30 years rather than 25 (see Appendix B in this volume and Congressional Budget Office, *The 2015 Long-Term Budget Outlook*, www.cbo.gov/publication/50250).

Figure 1-3.

**The Size of Policy Changes Needed to Make Federal Debt Meet Two Possible Goals in 2046**


Source: Congressional Budget Office.

In this figure, the indicated sizes of policy changes are relative to CBO's extended baseline. The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period. The policy changes shown above are calculated before macroeconomic feedback is taken into account. The projected effects on debt include both the direct effects of the specified policy changes and the resulting macroeconomic feedback to both spending and revenues. That feedback reflects the positive economic effects of lowering the debt but no assumptions about the specifics of the policy changes.

GDP = gross domestic product.

budget. If those changes came entirely from revenues or entirely from spending, they would amount, roughly, to a 9 percent increase in revenues or an 8 percent cut in noninterest spending in comparison with the extended baseline.

Increases in revenues or reductions in noninterest spending would need to be larger than 1.7 percent of GDP to reduce debt to the percentages of GDP that are more typical of those in recent decades. Suppose that lawmakers wanted to return the debt to 39 percent of GDP (its average over the past 50 years) by 2046. One way to do so would be to increase revenues or cut noninterest spending (in relation to current law), or do some combination of the two, beginning in 2017 by amounts totaling 2.9 percent of GDP each year. (In 2017, 2.9 percent of GDP would be about $560 billion, or $1,700 per person.) Again, the projected effects on debt include both the direct effects of the specified policy changes and the resulting macroeconomic feedback to the budget. That feedback reflects the positive economic effects of lowering the debt but no assumptions about the specifics of the policy changes.

Lawmakers could adopt many combinations of policies to meet that goal, including the following:

- *Increase all types of revenues by equal percentages.* Such changes would represent an increase of about 16 percent, under the extended baseline, for each year in the 2017–2046 period. For households in the middle fifth of the income distribution in 2017, for example, such increases would raise federal taxes per household by about $1,900, on average.

- *Cut all types of noninterest spending by equal percentages.* Such changes would represent a decrease of about 14 percent for each of the next 30 years. For example, for people in the middle fifth of the lifetime earnings distribution who were born in the 1950s and who claimed benefits at age 65, such cuts would lower their initial annual Social Security benefits by about $2,600, on average.

The magnitude of the policy changes needed to achieve a chosen goal for federal debt would depend, in part, on how quickly that goal was expected to be reached (see Box 1-1).

**How Different Amounts of Deficit Reduction Would Affect Federal Debt.** CBO also analyzed the effects of phasing in deficit reduction so that cumulative deficits (excluding interest payments and macroeconomic feedback) would be either $2 trillion or $4 trillion lower through 2026 than under the extended baseline. In later years, deficits would be reduced by the same percentage of GDP as in 2026.

CBO estimates that under those paths—after adjustment for the economic effects of the reduction in debt—federal debt as a share of GDP would still be higher than the nation's historical average. The −$2 trillion path would result in federal debt equal to 96 percent of GDP in 2046, well above today's 75 percent. The −$4 trillion path would result in federal debt amounting to 55 percent of GDP in 2046—lower than today's level but still higher than the historical average. Under both illustrative paths, economic output would be slightly lower over the next few years but higher in 2046 than under the extended baseline. Interest rates on federal debt would be lower in the long term. (Chapter 6 describes those results and the corresponding results for a budget path that adds $2 trillion to the deficit over the next 10 years.)

## Projected Spending Through 2046

Spending for the government's programs and activities, as well as its interest costs, is projected to be a higher percentage of GDP in coming years than it has been over the past several decades. Over the past 50 years, federal outlays (other than those for the government's net interest costs) have averaged 18 percent of GDP. However, since 2009, noninterest spending has been well above that average, both because of underlying demographic trends and because of temporary circumstances (namely, the financial crisis, weak economy, and ensuing policies). Noninterest spending spiked to 23 percent of GDP in 2009 but then declined to about 19 percent by 2014 as the economy recovered. Because of pressures from underlying demographic trends, CBO projects that noninterest outlays would reach almost 20 percent of GDP this year and remain close to that percentage throughout the coming decade. During that time, mandatory spending would generally increase as a share of the economy, whereas discretionary spending would decrease.

After 2026, under the assumptions that govern the extended baseline, noninterest spending would continue to rise in relation to the size of the economy, reaching 22.4 percent of GDP by 2046. (Table 1-2 on page 16 summarizes CBO's policy assumptions.) That increase would be mostly the result of rising spending for Social Security and the government's major health care programs.

Box 1-1.

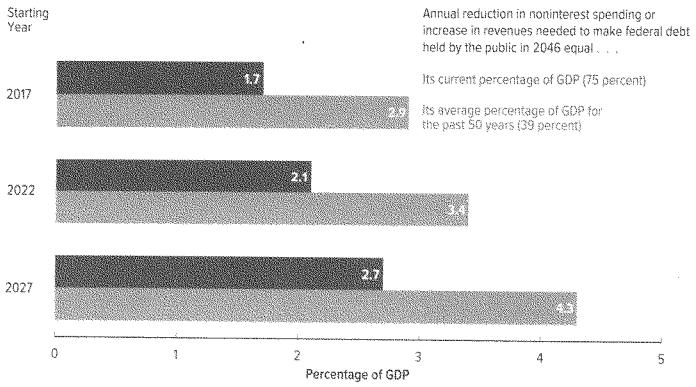
## The Timing of Policy Changes Needed to Meet Various Goals

In deciding how quickly to implement policies to put federal debt on a sustainable path—regardless of the chosen goal for federal debt—lawmakers face trade-offs. Reducing the deficit sooner would have several benefits—less accumulated debt, smaller policy changes required to achieve long-term outcomes, and less uncertainty about what policies lawmakers would adopt. However, if lawmakers implemented spending cuts or tax increases quickly, people would have little time to plan and adjust to the policy changes. Those changes also would weaken the economic expansion over the next two years or so. By contrast, waiting several years to reduce federal spending or increase taxes would mean more accumulated debt over the long run, which would slow long-term growth in output and income. Also, reaching any chosen target for debt would require larger policy changes. However, waiting several years would affect the economy less over the next few years than if lawmakers implemented policy changes immediately.

In addition, faster or slower implementation of policies to reduce budget deficits would tend to impose different burdens on different generations. Reducing deficits sooner would probably require today's older workers and retirees to sacrifice more and would benefit today's younger workers and future generations. By contrast, reducing deficits later would require smaller sacrifices by older people and greater sacrifices by younger workers and future generations.

CBO shows that collection of trade-offs in two ways. First, CBO estimated how the size of policy adjustments would change if deficit reduction was delayed. For example, suppose that lawmakers sought to return debt as a percentage of GDP to its historical 50-year average. But if the associated policy changes did not take effect until 2022, they would need to amount to 3.4 percent rather than the 2.9 percent of GDP that would accomplish that goal if the policy changes were made in 2017 (see the figure). Waiting five more years would require even larger changes, amounting to 4.3 percent of GDP.

**How Timing Affects the Size of Policy Changes Needed to Make Federal Debt Meet Two Possible Goals in 2046**




Source: Congressional Budget Office.

GDP = gross domestic product.

Continued

Box 1-1. Continued

**The Timing of Policy Changes Needed to Meet Various Goals**

Second, CBO studied how waiting to resolve the long-term fiscal imbalance would affect various generations of the U.S. population. In 2010, CBO compared economic outcomes under two policies. One would stabilize the debt-to-GDP ratio starting in a particular year; the other would wait 10 years to do so.[1] That analysis suggested that generations born after the earlier implementation date would be worse off under the second option. People born more than 25 years before that earlier implementation date, however, would be better off with delayed action—largely because they would partly or entirely avoid the policy changes needed to stabilize the debt. Generations born between those two groups could either gain or lose from delayed action, depending on the details of the policy changes.[2]

Even if lawmakers waited several years to implement policy changes to reduce deficits in the long term, making decisions about them sooner would offer advantages. With decisions reached sooner, people would have more time to prepare for the time when changes would be implemented. Also, policy changes that reduced future debt would hold down longer-term interest rates, reduce uncertainty, and enhance businesses' and consumers' confidence. Therefore, output and employment in the next few years would increase.

1. See Congressional Budget Office, *Economic Impacts of Waiting to Resolve the Long-Term Budget Imbalance* (December 2010), www.cbo.gov/publication/21959. That analysis was based on a projection of slower growth in debt than CBO now projects, so the estimated effects of a similar policy today would be close, but not identical, to the effects estimated in that earlier analysis. For a different approach to analyzing the cost of debt reduction for different generations, see Felix Reichling and Shinichi Nishiyama, *The Costs to Different Generations of Policies That Close the Fiscal Gap*, Working Paper 2015-10 (Congressional Budget Office, December 2015), www.cbo.gov/publication/51097.

2. Those conclusions do not incorporate the possible negative effects of a fiscal crisis or effects that might arise from the government's reduced flexibility to respond to unexpected challenges.

In addition, CBO projects that, under current law, net outlays for interest would jump from 1.4 percent of GDP this year to 3.0 percent 10 years from now as interest rates rise from their unusually low levels and debt accumulates. By 2046, interest costs would be 5.8 percent of GDP, bringing total federal spending to over 28.2 percent of GDP (see Figure 1-4). Only during World War II did federal spending constitute a larger share of the economy, topping 40 percent of GDP for three years.

### Spending for Social Security and Major Health Care Programs

Mandatory programs have accounted for a rising share of the federal government's noninterest spending over the past few decades, exceeding 60 percent for the past several years. Much of the growth has occurred because Social Security and Medicare—the largest mandatory programs—benefit primarily people age 65 or older, a group that has been growing significantly. Federal outlays for those two programs made up almost 40 percent of the government's noninterest spending, on average, during the past 10 years, compared with 16 percent 50 years ago.

**Projected Growth in Spending.** CBO projects that spending for Social Security would increase noticeably as a share of the economy—from 4.9 percent of GDP in 2016 to 6.3 percent in 2046. The agency's projections of federal spending for Social Security incorporate the assumption that the laws governing that program will not change. For these projections, CBO also assumes that Social Security will pay benefits as scheduled under current law regardless of the status of the program's trust funds.[9] That approach is consistent with a statutory requirement that CBO's 10-year baseline projections incorporate the assumption that funding for entitlement programs is adequate to make all payments required by law.[10] (For more on Social Security, see Chapter 2.)

9. The balances of the trust funds represent the total amount that the government is legally authorized to spend for those purposes. CBO currently projects that, under current law, the two Social Security trust funds combined would be exhausted in 2029. For more about the legal issues related to exhaustion of a trust fund, see Noah P. Meyerson, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report for Congress RL33514 (Congressional Research Service, August 28, 2014), available from U.S. House of Representatives, Committee on Ways and Means, *2014 Green Book*, Chapter 1: Social Security, "Social Security Congressional Research Service Reports" (accessed July 8, 2016), http://go.usa.gov/cCXcG.

10. Sec. 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985, Public Law 99-177 (codified at 2 U.S.C. §907(b)(1) (2012)).

**Table 1-2.**

## Assumptions About Spending and Revenues That Underlie CBO's Extended Baseline

| | |
|---|---|
| | **Assumptions About Spending** |
| Social Security | As scheduled under current law[a] |
| Medicare | As scheduled under current law through 2026; thereafter, projected spending depends on the estimated number of beneficiaries and health care costs per beneficiary (for which excess cost growth is projected to move smoothly to a rate of 1.0 between 2027 and 2046)[a] |
| Medicaid | As scheduled under current law through 2026; thereafter, projected spending depends on the estimated number of beneficiaries and health care costs per beneficiary (for which excess cost growth is projected to move smoothly to a rate of 1.0 between 2027 and 2046) |
| Children's Health Insurance Program | As projected in CBO's baseline through 2026; remaining constant as a percentage of GDP thereafter |
| Subsidies for Health Insurance Purchased Through the Marketplaces | As scheduled under current law through 2026; thereafter, projected spending depends on the estimated number of beneficiaries, an additional indexing factor for subsidies, and excess cost growth for private health insurance premiums (which is projected to move smoothly to a rate of 1.0 between 2027 and 2046) |
| Other Mandatory Spending | As scheduled under current law through 2026; thereafter, refundable tax credits are estimated as part of revenue projections, and the rest of other mandatory spending is assumed to decline as a percentage of GDP at roughly the same annual rate at which it is projected to decline between 2021 and 2026[b] |
| Discretionary Spending | As projected in CBO's baseline through 2026; remaining roughly constant as a percentage of GDP thereafter[c] |
| | **Assumptions About Revenues** |
| Individual Income Taxes | As scheduled under current law |
| Payroll Taxes | As scheduled under current law |
| Corporate Income Taxes | As scheduled under current law (remaining constant as a percentage of GDP after 2026) |
| Excise Taxes | As scheduled under current law[d] |
| Estate and Gift Taxes | As scheduled under current law |
| Other Sources of Revenues | As scheduled under current law (remaining constant as a percentage of GDP after 2026) |

Source: Congressional Budget Office.

For CBO's most recent 10-year baseline projections, see Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384.

GDP = gross domestic product.

a. Assumes the payment of full benefits as calculated under current law, regardless of the amounts available in the program's trust funds.

b. In that projection, GDP includes the macroeconomic effects of the policies underlying the extended baseline. If it did not, the rest of other mandatory spending after 2026 would decline at precisely the same rate at which it is projected to decline between 2021 and 2026.

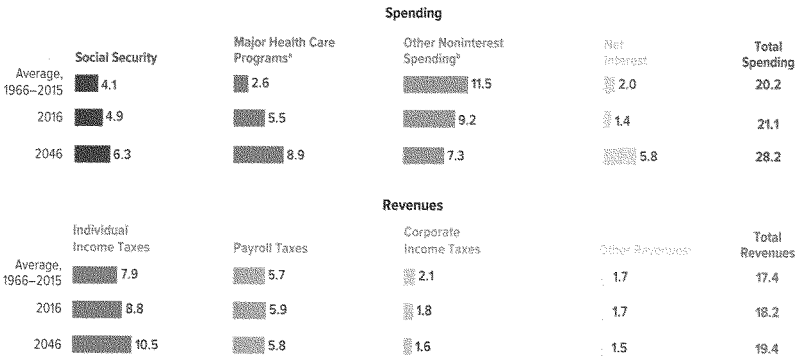
c. In that projection, GDP includes the macroeconomic effects of the policies underlying the extended baseline. If it did not, discretionary spending after 2026 would remain precisely the same (measured as a percentage of GDP) as projected for 2026.

d. The sole exception to the current-law assumption applies to expiring excise taxes dedicated to trust funds. The Balanced Budget and Emergency Deficit Control Act of 1985 requires CBO's baseline to reflect the assumption that those taxes would be extended at their current rates. That law does not stipulate that the baseline include the extension of other expiring tax provisions, even if they have been routinely extended in the past.

**Figure 1-4.**

**Spending and Revenues in the Past and Under CBO's Extended Baseline**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

a. Consists of spending on Medicare (net of offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

b. Consists of all federal spending other than that for Social Security, the major health care programs, and net interest.

c. Consists of excise taxes, remittances to the Treasury from the Federal Reserve System, customs duties, estate and gift taxes, and miscellaneous fees and fines.

In the extended baseline, spending for the major health care programs is projected to grow much faster than the economy. Those programs include Medicare, Medicaid, and the Children's Health Insurance Program, as well as spending on subsidies for health insurance purchased through the marketplaces established by the Affordable Care Act (ACA) and related spending.[11] Total outlays for those programs over the next 30 years, net of offsetting receipts, would increase from 5.5 percent of GDP now to 8.9 percent in 2046.[12] About three-quarters of that increase would come from spending for the Medicare program. CBO projects federal spending for the government's major health care programs for 2016 through 2026 under the assumption that the laws governing those programs will, in general, remain unchanged. As with Social Security, CBO assumes that Medicare will pay benefits as scheduled under current law regardless of the status of the program's trust funds. For projections beyond 2026, considerable uncertainty surrounds the evolution of the health care delivery and financing systems. That uncertainty leads CBO to employ a formulaic approach: CBO combines estimates from the government's health care programs of the number of expected beneficiaries with mechanical estimates of the growth in spending per beneficiary. (Chapter 3 describes the long-term projections for the major health care programs.)

**Causes of Spending Growth.** The aging population and excess cost growth account for the projected rise (with respect to GDP) in spending on Social Security and the

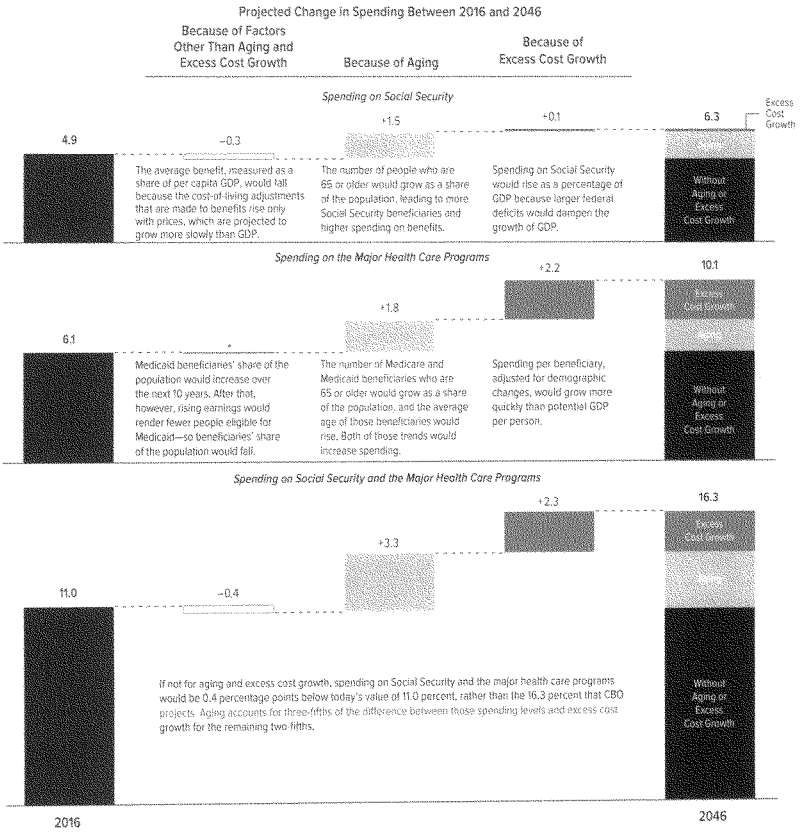
11. Spending related to subsidies for insurance purchased through the marketplaces (formerly called exchanges in CBO's publications) includes spending for subsidies for insurance provided through the Basic Health Program, spending for the risk-adjustment and reinsurance programs that were established by the ACA to stabilize premiums for health insurance purchased by individuals and small employers, and spending to provide grants to states for establishing a marketplace.

12. In particular, unless otherwise specified, Medicare outlays are presented net of offsetting receipts—mostly enrollee-paid premiums, which reduce net outlays for that program.

Figure 1-5.

## Causes of Projected Spending Growth in Social Security and the Major Health Care Programs

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

Outlays for the major health care programs consist of gross spending for Medicare (which does not account for offsetting receipts that are credited to the program), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

Excess cost growth is defined as the extent to which the growth of health care costs per beneficiary, adjusted for demographic changes, exceeds the growth of potential GDP per person. (Potential GDP is the maximum sustainable output of the economy.)

This figure highlights the most important effects of aging and excess cost growth. Other effects, such as the effect of aging on the number of Social Security Disability Insurance beneficiaries, are smaller.

GDP = gross domestic product; * = between zero and -0.1 percent.

major federal health care programs.[13] Without aging or excess cost growth, spending on Social Security and major health care programs as a share of GDP in 2046 would be 0.4 percentage points below today's value of 11.0 percent, CBO projects; in the extended baseline, that spending is projected to be 16.3 percent of GDP (see Figure 1-5).[14] Aging accounts for 3.3 percentage points, or roughly 60 percent of the difference. Excess cost growth accounts for the rest, at 2.3 percentage points.

*The Aging Population.* The retirement of the baby boomers and continued increases in life expectancy will substantially increase the share of the population that is of retirement age (65 and older). Between 2016 and 2046, that share will increase from 15 percent to 21 percent.

Aging accounts for nearly all the projected long-term increase in Social Security spending as a percentage of GDP.[15] Because of aging, the number of people who are 65 or older would grow as a share of the population, leading to more Social Security beneficiaries and higher federal spending on benefits.

Aging also contributes to the projected increase in spending for major health care programs as a share of GDP—particularly for Medicare, the largest federal health care program. As the population ages, Medicare beneficiaries will make up more of the population. Beneficiaries will be older, on average, and older beneficiaries tend to have higher average spending. Both of those trends would increase Medicare spending. CBO estimates that aging explains just under half of the increase in spending for major health care programs as a share of GDP between 2016 and 2046.

*Rising Health Care Spending per Beneficiary.* Even though growth in health care spending has slowed in recent years, CBO projects that excess cost growth will be greater than zero, on average, over the next 30 years (see Chapter 3). For major health care programs, excess cost growth accounts for just over half of the increase in spending as a share of GDP between 2016 and 2046. That contribution occurs mainly because excess cost growth means that spending per beneficiary grows faster than the potential GDP. Secondarily, such cost growth leads to higher federal debt—which slows the growth of GDP and therefore slightly raises spending as a share of GDP.

### Other Noninterest Spending

In the extended baseline, total federal spending for everything other than Social Security, the major health care programs, and net interest declines to a smaller percentage of GDP than has been the case for more than 70 years. During the past 50 years, such spending has averaged 12 percent of GDP, reaching as much as 15 percent in 1968 and falling to as little as 8 percent in the late 1990s and early 2000s. CBO estimates that other noninterest spending will equal 9.2 percent of GDP in 2016. Under the assumptions used for this analysis, that spending is projected to fall to 7.7 percent of GDP in 2026 and to 7.3 percent of GDP in 2046.

Outlays for discretionary programs as a share of GDP are projected to decline significantly over the next 10 years—from 6.5 percent to 5.2 percent—in part because of the constraints on discretionary funding imposed by the Budget Control Act of 2011. After 2026, discretionary spending is assumed to remain roughly constant as a percentage of GDP.

Spending for mandatory programs other than Social Security and the major health care programs also is projected to decline as a share of the economy over the next 10 years. Those mandatory programs include retirement programs for federal civilian and military employees, certain veterans' programs, the Supplemental Nutrition Assistance Program (SNAP), unemployment compensation, and refundable tax credits. That spending accounts for 2.8 percent of GDP today and is projected to fall to 2.5 percent of GDP in 2026, if current laws generally remain unchanged.[16] In CBO's extended baseline, that

13. Excess cost growth is the extent to which health care costs per beneficiary, as adjusted for demographic changes, grow faster than potential GDP per capita. For the analysis of causes of spending growth, spending on major health care programs includes gross spending on Medicare, Medicaid, and the Children's Health Insurance Program, as well as subsidies for health insurance purchased through the marketplaces and related programs.

14. Spending under the scenario with no aging or excess cost growth is projected by setting the shares of the population by age at today's proportions and by setting excess cost growth at zero.

15. Excess cost growth accounts for a small portion of the difference between those scenarios in spending for Social Security in 2046. Accounting for excess cost growth increases spending on Social Security as a share of GDP slightly because higher spending on federal health care programs leads to higher deficits, slowing the growth of GDP.

16. The law governing CBO's baseline projections (sec. 257(b)(2) of the Deficit Control Act) makes exceptions for some programs, such as SNAP, that have expiring authorizations but that are assumed to continue as currently authorized.

spending is projected to fall to 2.1 percent of GDP by 2046—lower than at any point at least since 1962, the first year for which comparable data are available. (For more on other noninterest spending, see Chapter 4.)

### Net Interest Costs

The government's net interest costs are projected to more than double as a share of the economy over the next decade—from 1.4 percent of GDP in 2016 to 3.0 percent by 2026. By 2046, those costs would reach 5.8 percent of GDP under the extended baseline. Net interest costs are projected to increase as interest rates rise from unusually low levels and as greater federal borrowing directly leads to greater debt-service costs. In addition, greater federal borrowing is projected to put further upward pressure on interest rates and thus on interest costs. Growth in net interest costs and growth in debt reinforce each other: Rising interest costs push up deficits and debt, and rising debt pushes up interest costs.

CBO projects that interest rates will rise from today's low rates as the economy grows but that they still will be lower than they have been, on average, during the past few decades. Over the long term, interest rates are projected to rise to levels consistent with factors such as labor force growth, productivity growth, the demand for investment, and federal deficits. According to CBO's projections, factors that push interest rates down from their historical levels—such as slower growth of the labor force—would outweigh factors that push interest rates up from their historical levels—such as rising federal debt. For example, in CBO's latest 10-year economic projections, the interest rate on 10-year Treasury notes would rise from 2.2 percent at the end of 2015 to 4.1 percent in 2026. In the extended baseline, the rates on those notes would rise to 4.7 percent in 2046—still below the average of 5.8 percent between 1990 and 2007. (CBO uses the 1990–2007 period for comparison because it featured stable expectations for inflation and no significant financial crises or severe economic downturns.)

The average interest rate on all federal debt held by the public tends to be lower than the rate on 10-year Treasury notes. (In general, interest rates are lower on shorter-term debt than on longer-term debt; since the 1950s, the average maturity of federal debt has been shorter than 10 years.) On the basis of the agency's projected spreads of interest rates and the term structure of federal debt, beyond 2026, CBO anticipates that the average interest rate on federal debt will be about 0.4 percentage points lower than the interest rate on 10-year Treasury notes. As a result, CBO projects that the rate will rise to 4.4 percent in 2046.

Rising rates will add significantly to interest costs and thus increase federal debt (as a share of the economy) in CBO's extended baseline. Although interest rates are projected to remain notably below their average in recent decades, anticipated increases in rates account for roughly three-quarters of the projected increase in debt as a percentage of GDP by 2046.

## Projected Revenues Through 2046

In CBO's extended baseline, revenues are projected to constitute a larger share of GDP than they have, on average, in recent decades. Over the past 50 years, federal revenues as a share of GDP have averaged 17 percent—fluctuating between 15 percent and 20 percent as a result of changes in tax laws and interactions between tax law and economic conditions.

CBO projects that, under current law, revenues as a share of GDP would be roughly flat over the coming decade—fluctuating between 18.0 percent and 18.2 percent. For years beyond 2026, CBO assumes that the rules for all tax sources will evolve as scheduled under current law.[17] Under those assumptions, revenues would grow slightly faster than GDP beyond 2026. During that time, real bracket creep would continue to push a growing share of income into higher tax brackets because of growth in real (inflation-adjusted) income and the tax system's interaction with inflation. Also, certain tax increases enacted under the ACA, especially the high-premium excise tax, would generate increasing revenues in relation to the size of the economy. By 2046, total revenues would be 19.4 percent of GDP (see Chapter 5).

Even if lawmakers enacted no future changes in tax law, the effects of the tax system in 2046 would differ substantially from today's. Average taxpayers at all income levels would pay more of their income in taxes than similar taxpayers do now, primarily because more of their income

17. The sole exception to that current-law assumption applies to expiring excise taxes dedicated to trust funds. The Deficit Control Act requires CBO's baseline to reflect the assumption that those taxes would be extended at their current rates. That law does not stipulate that the baseline include the extension of other expiring tax provisions, even if lawmakers have routinely extended them before.

would be taxed in higher brackets. Higher marginal tax rates on both labor and capital would dampen economic activity, reducing overall tax revenue from what it would be otherwise, CBO estimates.

## Economic and Demographic Projections Underlying CBO's Long-Term Projections

Through 2026, the economic and demographic projections in this report are the same as the agency's 10-year baseline. For later years, CBO projects economic and demographic conditions according to its assessment of long-term trends. (Appendix A describes CBO's economic and demographic projections). Those economic projections reflect the effects that projected fiscal policies—namely, increased federal borrowing and rising marginal tax rates—would have on the economy. Such effects would result in lower labor supply, a smaller stock of capital, and lower output than would otherwise be the case. (Chapter 6 further describes how CBO assesses the long-term macroeconomic effects of federal tax and spending policies.)

### Economic Projections

Future economic growth will be slower than over the past 50 years, CBO projects, largely because of less growth in the labor force. The labor force is projected to grow by an average of 0.4 percent per year over the next 30 years, compared with 1.5 percent between 1966 and 2015. Contributing factors include the retiring baby boomers, declining birthrates, and declining participation in the labor force. In addition, rising debt would slow the growth of the capital stock and therefore future economic output. CBO also projects that total factor productivity will grow slightly more slowly than its historical average, increasing by 1.3 percent per year, on average, from 2016 to 2046. That average growth rate is about 0.2 percentage points slower than the average annual rate of nearly 1.5 percent since 1950. Taking into account those and other economic variables, CBO projects that, under the extended baseline, real GDP would increase by 2.1 percent per year, on average, over the next 30 years, compared with 2.9 percent between 1966 and 2015.

Another measure of economic growth is gross national product (GNP). Unlike the more commonly cited GDP, GNP includes the income that U.S. residents earn abroad and excludes the income that foreigners earn in this country. GNP is therefore a better measure of the resources available to U.S. households. In the extended baseline, CBO projects that real GNP will increase by 2.0 percent per year, on average, over the next 30 years, compared with 2.9 percent over the past 50 years. Real GNP per person would rise from $58,000 today to $86,000 (in 2016 dollars) in 2046, growing by 1.3 percent per year, on average, over the entire period. That growth rate is slower than the 1.9 percent experienced during the 1966–2015 period.

### Demographic Projections

The size and age profile of the U.S. population affects budgetary and economic outcomes for the nation. The size of the labor force and number of Social Security beneficiaries are two examples. The U.S. population will grow from 328 million at the beginning of this year to 400 million in 2046, CBO projects, expanding by 0.7 percent per year, on average. That rate is slower than the 0.9 percent experienced over the past 50 years. The population's age distribution will continue to shift over the coming decades as well, maintaining a long-standing historical trend. By 2046, 21 percent of the population will be age 65 or older, CBO anticipates, compared with 15 percent today.

To estimate the U.S. population in the coming decades, CBO projects rates of fertility, immigration, and mortality. CBO anticipates an average of 1.9 children born per woman between 2016 and 2046, continuing a decline from the recent peak of 2.1 in 2007. Net immigration will decline from an estimated 4.0 immigrants per thousand people today to 3.7 by 2046, according to CBO's estimates. Mortality rates—the number of deaths per thousand people in the population—for specific age and sex groups are expected to improve, on average, at the same rate each experienced from 1950 to 2012.

## Changes From Last Year's Long-Term Budget Outlook

Each time it prepares long-term budget projections, CBO updates them to incorporate legislative, economic, and technical changes. The projections of federal deficits and resulting debt presented here are generally higher than those published in 2015.[18] Much of that increase stems from reduced corporate and individual income taxes, resulting from the extension of tax provisions by

18. For CBO's long-term projections for the 2015–2040 period, see Congressional Budget Office, *The 2015 Long-Term Budget Outlook* (June 2015), www.cbo.gov/publication/50250.

the Consolidated Appropriations Act, 2016. Downward revisions to CBO's economic forecast and technical changes have also, on net, increased projected deficits. (Appendix B describes the key revisions to the budgetary projections since last year.)

Projections in this report incorporate estimates of the macroeconomic effects of the fiscal policy that is projected to occur if current laws generally remained unchanged. That approach represents a departure from last year's report, in which the detailed spending projections and the economic projections presented in Appendix A did not incorporate the macroeconomic effects of fiscal policy after the first 10 years. (Chapter 6 in last year's report described estimates that incorporated the macroeconomic effects of fiscal policy.)

Taken together, legislative, economic, and technical changes affected CBO's view of the long-term outlook for the federal budget in several ways. Under the extended baseline, CBO now projects that debt would reach 122 percent of GDP in 2040, compared with 107 percent projected last year. (Those figures incorporate feedback to the budget from the macroeconomic effects of those paths for federal debt.) Higher deficits in this year's report also mean that larger budgetary changes would be required to make federal debt equal today's level in 25 years (last year's projection period). To ensure that debt in 2041 would equal today's level, lawmakers would have to cut noninterest spending or increase revenues (or undertake some combination of the two) by roughly 1.7 percent of GDP in each year from 2017 through 2041 (before taking into account macroeconomic feedback). The projected effects on debt include both the direct effects of the specified policy changes and the resulting macroeconomic feedback to the budget. That feedback reflects the positive macroeconomic effects of lowering the debt but no assumptions about the specifics of the policy changes. Without those positive macroeconomic effects, that change would be 2.0 percent of GDP. Last year, for the 2016–2040 period, CBO estimated that doing so would require changes equal to 1.1 percent of GDP (excluding all macroeconomic effects).

CHAPTER

# 2

# The Long-Term Outlook for Social Security

Social Security, which was created in 1935, is the largest single program in the federal budget. The program's two components pay benefits to more than 60 million beneficiaries in all. The larger of the two, Old-Age and Survivors Insurance (OASI), pays benefits to retired workers, to their eligible dependents, and to some survivors of deceased workers. The smaller, Disability Insurance (DI), makes payments to disabled workers and to their dependents until those workers are old enough to claim full retirement benefits under OASI. The Congressional Budget Office estimates that the program's mandatory outlays will total $911 billion in fiscal year 2016, accounting for almost one-quarter of all federal spending.[1]

During the program's first five decades, Social Security spending grew from less than 1 percent of gross domestic product (GDP) in the early years to nearly 5 percent of GDP by 1983. That rise was attributable mainly to program expansions, particularly the 1956 creation of the DI program. From 1984 to 2008, Social Security spending averaged 4.2 percent of GDP. During the 2007–2009 recession, GDP shrank, and the number of OASI and DI claimants rose unusually rapidly as the job market deteriorated. That set of conditions, along with the higher-than-average cost-of-living adjustment that was applied to benefits in January 2009, resulted in Social Security's outlays reaching 4.7 percent of GDP in 2009.

For several reasons, spending has remained at about that level since then. The weakness in the economy resulting from the recession was temporary, but the burgeoning rate of retirement among baby-boom generation workers is having a lasting effect. In 2016, CBO estimates that Social Security outlays will be 4.9 percent of GDP.

In coming decades, as more members of the baby-boom generation reach retirement age, a larger proportion of the population will receive benefits; as life expectancy continues to increase, those beneficiaries will collect benefits for a longer time. If full benefits were paid under the formulas specified in current law, CBO projects, Social Security spending would rise steadily, reaching 5.9 percent of GDP in 2026 and 6.3 percent of GDP in 2046 (see Figure 2-1).

## How Social Security Works

Because 72 percent (or 43 million) of its beneficiaries are retired workers or the spouses and children of those recipients, Social Security is often characterized as a retirement program.[2] In general, workers qualify for Social Security retirement benefits if they are age 62 or older and have paid sufficient Social Security taxes for at least 10 years.

Social Security also provides other benefits, including payments to the survivors of deceased workers—currently 10 percent of beneficiaries. In addition, workers who have not reached the full retirement age (FRA) and who are judged unable to perform "substantial" work because of a physical or mental disability can qualify for DI benefits, in many cases after a shorter period of employment than is required to collect retirement benefits. (DI beneficiaries become retired-worker beneficiaries at the FRA with no change in benefit amounts.) Disabled workers and their spouses and children account for 18 percent of beneficiaries.[3] In dollar terms, 71 percent of Social Security benefits are paid to retired workers and their dependents,

1. That amount consists of about $906 billion in benefits, about $5 billion in transfers to the Railroad Retirement Board, and less than $1 billion in payments to the Treasury for administrative costs. CBO estimates that another $6 billion—classified as discretionary spending—will be spent to administer the program. In this report, spending for Social Security generally refers to mandatory outlays.

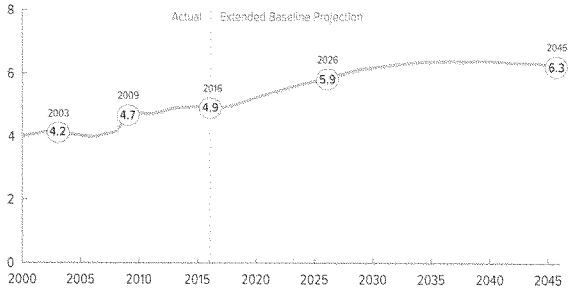
2. For a more detailed description of the Social Security program, see Congressional Budget Office, *Social Security Policy Options, 2015* (December 2015), www.cbo.gov/publication/51011.

3. See Congressional Budget Office, *Social Security Disability Insurance: Participation and Spending* (June 2016), www.cbo.gov/publication/51443, and *Policy Options for the Social Security Disability Insurance Program* (July 2012), www.cbo.gov/publication/43421.

Figure 2-1.

**Spending for Social Security**

Percentage of Gross Domestic Product




Spending for Social Security rose during the 2007–2009 recession. The baby boomers' retirement and increased life expectancy will lead to still higher outlays as a percentage of gross domestic product.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period. The extended baseline incorporates the assumption that spending for Social Security continues as scheduled even if its trust funds are exhausted.

survivors receive 13 percent, and disabled workers and their spouses and children receive 16 percent.[4]

### Benefits

Retired workers and those who collect disabled worker benefits receive initial benefits that are based on their individual earnings histories, indexed to changes in average annual earnings for the U.S. workforce (including earnings that are not subject to taxation under Social Security). After the first year of benefit eligibility, a cost-of-living adjustment is applied to account for annual growth in consumer prices.

A worker's birth year determines the age of eligibility to receive full OASI payments. For example, any eligible worker born before 1938 could have claimed full retirement benefits at the age of 65. (Under current law, upon reaching the early eligibility age of 62, any eligible worker may claim reduced benefits.) According to a schedule enacted in the Social Security Amendments of 1983, the FRA is rising incrementally: For workers born between 1938 and 1942, it increased by two months for each successive birth year, reaching 66 for workers who were born between 1943 and 1954. The FRA will continue to rise gradually, starting at 66 and 2 months for workers who were born in 1955 (who will turn 62 in 2017) and eventually reaching 67 for people born after 1959 (the youngest of whom will turn 62 in 2022).

According to CBO's current estimates, the initial average annual benefit for a retired worker born in the 1940s and claiming benefits at age 65 (that is, between 2005 and 2014) was about $17,000 in 2015 dollars. For claimants with at least 20 years of earnings, those benefits replaced, on average, about 43 percent of their preretirement earnings (defined as the average of the final five years of a worker's substantial earnings before age 62).[5] Over time,

4. The categorizations of benefits and beneficiaries are not completely consistent—some people receive benefits in more than one category. For instance, in the calculations of the numbers of beneficiaries by category, retired workers who also receive survivors' benefits are counted as retired. But in the calculation of the distribution of benefits, their benefit payments are prorated to the retired-worker and survivor categories.

5. Earnings are substantial if they amount to at least half of a worker's average indexed earnings. Workers with fewer than 20 years of earnings above 10 percent of average annual earnings for the U.S. workforce are excluded from this calculation. See Congressional Budget Office, *CBO's 2015 Long-Term Projections for Social Security: Additional Information* (December 2015), www.cbo.gov/publication/51047. CBO will publish updated estimates of benefits and replacement rates later in 2016.

the real (inflation-adjusted) value of initial benefits for retirees is likely to rise because initial benefits are based on beneficiaries' previous earnings, indexed to average wage growth in the United States, and because over the long term, growth in wages is expected to outpace inflation.

### Taxes

The Social Security program is funded by dedicated tax revenues from two sources. Currently, 96 percent comes from a payroll tax—generally, 12.4 percent of earnings that are subject to that tax. Workers and their employers each pay half; self-employed people pay the entire amount. Earnings up to a maximum annual amount—$118,500 in calendar year 2016—are subject to the payroll tax. That taxable maximum generally increases each year at the same rate as average earnings in the United States, and it has remained a nearly constant proportion of the average wage since the early 1980s. Because earnings have grown more for high earners than for others, the portion of earnings on which Social Security payroll taxes are paid has fallen from 90 percent in 1983 to 82 percent in 2016. CBO expects that disparity in growth in earnings to continue for at least the next decade, causing the portion of earnings that is subject to the Social Security tax to fall to below 78 percent by 2026 and to remain near that level thereafter.

The remaining share of tax revenues—4 percent—is collected from income taxes on Social Security benefits. Recipients who file individual income tax returns must pay taxes on their benefits if the sum of their non–Social Security income (generally, adjusted gross income plus nontaxable interest income) and half of their benefits exceeds $25,000; the threshold for joint filers is $32,000. Under current law, those thresholds will remain the same over time—no adjustments are made to account for earnings growth or for inflation.

### Trust Funds

Revenues from the payroll tax and the tax on benefits are credited to the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund, which finance the program's benefits. Social Security benefits account for 99 percent of total outlays from those two funds; the remaining 1 percent covers administrative costs. Interest on the balances is credited to the trust funds, but because the interest transactions represent payments from one part of the government (the general fund of the Treasury) to another (the trust funds), they do not affect federal budget deficits or surpluses. Over the history of the trust funds, receipts—tax revenues, interest payments, and occasional transfers from the general fund—have exceeded outlays. The trust funds' balances stood at $2.8 trillion at the end of May 2016.

## The Outlook for Social Security Spending and Revenues

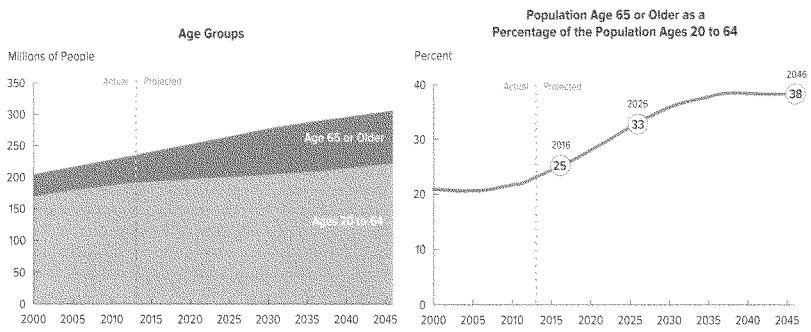
For some time, both the Social Security Administration and CBO have projected that, if full benefits were paid under the formulas specified in current law, the program's spending would rise significantly during the coming decades. Average benefits per recipient are expected to continue to increase because the earnings that are the basis of those benefits will increase. Other things being equal, that relationship would tend to keep total benefits roughly stable as a percentage of GDP. However, as a larger share of the baby-boom generation reaches retirement age and as longer life spans lead to longer retirements, a significantly larger portion of the population will draw benefits. Those developments will combine to cause the total amount of benefits scheduled to be paid under current law to grow faster than the economy. In contrast, total revenues for the program are anticipated to decline slightly as a percentage of GDP. The faster growth projected for total benefits than for total revenues would create a shortfall in the program's finances. The amounts of Social Security benefits received and taxes paid, and the resulting gap between total revenues and benefits, will depend on changes in life expectancy, conditions in the labor market, and other factors.

CBO's extended baseline, which encompasses the period from 2016 through 2046, generally reflects the provisions of current law.[6] In keeping with the rules specified in the Balanced Budget and Emergency Deficit Control Act of 1985, however, CBO's extended baseline incorporates the assumption that scheduled payments will continue to

6. CBO's Social Security projections extend for 75 years, from 2016 to 2090. However, the agency uses separate methods to make budgetary projections for the periods before and after 2046. Through 2046, the extended baseline accounts for the effects of fiscal policy (notably, rising federal debt and marginal tax rates; see Chapter 6). Projections for the period after 2046 are governed by two assumptions: that federal debt remains constant as a share of GDP and that marginal tax rates remain unchanged from their 2046 values.

Figure 2-2.

**Population, by Age Group**




Source: Congressional Budget Office.

This figure shows actual data through calendar year 2013, the most recent year for which such data are available.

be made in full after a trust fund has been exhausted, although there is no current legal authority to make such payments. The agency's projections for Social Security spending and revenues are based on a detailed microsimulation model, which starts with data about individuals from a representative sample of the population and projects demographic and economic outcomes for that sample through time. For each individual in the sample, the model simulates birth, death, immigration and emigration, marital status and changes to it, fertility, labor force participation, hours worked, earnings, and payroll taxes, along with Social Security retirement, disability, and dependents' and survivors' benefits.[7]

### Demographic Changes

According to CBO's projections, the number of people who are age 65 or older will increase by 37 percent between now and 2026, and it will increase by 75 percent between now and 2046 as the baby-boom generation ages and life expectancy increases (for more information on CBO's demographic projections, see Appendix A). In comparison, CBO anticipates increases of just 3 percent and 14 percent in the population between the ages of 20 and 64 over those same periods. Today, that older group is one-quarter of the size of the younger group. The proportion is expected to increase to 33 percent by 2026 and to 38 percent by 2046 (see Figure 2-2). If current laws remained in place, more than 78 million people would collect benefits in 2026 and almost 100 million people would do so in 2046; currently, Social Security has more than 60 million beneficiaries.

CBO expects that future increases in life expectancy will be larger for people with higher lifetime earnings; that expectation is consistent with the pattern of past increases.[8] Retirees with higher lifetime earnings receive larger benefits than do their lower-earning counterparts, so their

7. See Congressional Budget Office, *CBO's Long-Term Model: An Overview* (June 2009), www.cbo.gov/publication/20807.

8. Life expectancy is the number of additional years a person is expected to live at a specified age. For more information on differences in life expectancy among groups with different earnings, see Barry Bosworth, Gary Burtless, and Kan Zhang, "What Growing Life Expectancy Gaps Mean for the Promise of Social Security" (Brookings, accessed July 8, 2016), http://tinyurl.com/ho69udx; Government Accountability Office, *Retirement Security: Shorter Life Expectancy Reduces Projected Lifetime Benefits for Lower Earners*, GAO-16-354 (March 2016), www.gao.gov/products/GAO-16-354; and Julian P. Cristia, *The Empirical Relationship Between Lifetime Earnings and Mortality*, Working Paper 2007-11 (Congressional Budget Office, August 2007), www.cbo.gov/publication/19096.

greater increase in life expectancy will raise total future benefits, all else being equal. Similarly, the greater increase in life expectancy of high earners will boost the ratio of lifetime Social Security benefits to lifetime Social Security taxes for high earners relative to that of low earners, reducing the progressivity of the system.[9]

### Projected Spending and Revenues

If current laws generally remained in place, spending for Social Security would rise from 4.9 percent of GDP in 2016 to 5.9 percent in 2026 and to 6.3 percent in 2046, CBO projects. The share of Social Security spending for disability benefits would fall from 16 percent today to 13 percent in 2046. Most disabled beneficiaries are between age 50 and the FRA. As the baby-boom generation ages, the share of the population in that range will fall, and the share of the population over the FRA, most of whom receive OASI benefits, will rise.

In contrast, taxes credited to the Social Security program would decline slightly as a share of GDP, according to projections in CBO's extended baseline. Because Social Security payroll tax receipts constitute a fixed share of taxable earnings, and because taxable earnings are projected to decline as a share of GDP, payroll taxes also would decline as a share of GDP—from 4.3 percent in 2016 to 4.1 percent in 2046 (see Appendix A). However, CBO projects increases in the number of Social Security recipients whose benefits are subject to taxation, the taxable share of their benefits, and their average income tax rates. (CBO's tax projections are discussed in Chapter 5.) Income taxes on Social Security benefits that are credited to the Social Security trust funds would grow from about 0.2 percent of GDP today to 0.3 percent of GDP in 2046 under those circumstances. By 2046, total Social Security tax revenues—from payroll taxes and taxes on benefits—would equal 4.4 percent of GDP, 0.1 percentage point below the current amount.

In 2010, for the first time since the enactment of the Social Security Amendments of 1983, annual outlays for the program exceeded annual receipts, excluding interest credited to the trust funds. A gap between those amounts has persisted since then, and in 2015, outlays exceeded receipts, excluding interest, by about 8 percent. CBO projects that, as more people in the baby-boom generation retire over the next 10 years, that gap would widen. According to CBO's extended baseline projections, Social Security outlays would exceed the program's revenues by 31 percent in 2026 and by 44 percent in 2046.

### Financing of Social Security

A common measure of the sustainability of a program that has a trust fund and a dedicated revenue source is its estimated actuarial balance over a given period—that is, the sum of the present value of projected tax revenues and the current trust fund balance minus the sum of the present value of projected outlays and a year's worth of benefits at the end of the period.[10] For Social Security, that difference is traditionally presented as a percentage of the present value of taxable payroll.[11]

Over the next 75 years, if current laws remained in place, the program's actuarial shortfall would be 4.7* percent of taxable payroll, or 1.6 percent of GDP, CBO projects

9. The ratio of lifetime benefits to taxes in Social Security depends on the number of years that a recipient collects benefits, the annual benefit amounts, the number of years in which that recipient paid Social Security taxes, and the amount of taxes paid each year. In general, payments to beneficiaries with low lifetime earnings replace more of their average lifetime earnings than do payments to higher-earning beneficiaries. But because low earners tend to have a shorter life expectancy than higher earners do, low earners tend to collect benefits for fewer years. All told, lifetime Social Security benefits as a share of lifetime earnings decrease as earnings increase, but estimates of that effect vary and depend on whether disabled and survivor beneficiaries are included, how spousal benefits are accounted for, and how married couples are treated. See, for example, Barry P. Bosworth and Kathleen Burke, *Differential Mortality and Retirement Benefits in the Health and Retirement Study* (April 2014), pp. 5–6, http://tinyurl.com/nqlhpyt.

10. A present value is a single number that expresses a flow of past and future income (in taxes) or payments (in benefits) in terms of an equivalent lump sum received or paid at a specific time. The value depends on the rate of interest, known as the discount rate, used to translate past and future cash flows into current dollars at that time. To account for the difference between the trust fund's current balance and the balance desired for the end of the period, the balance at the beginning is added to the projected tax revenues and an additional year of costs at the end of the period is added to projected outlays.

11. Taxable payroll is total earnings (wages and self-employment income) for employment covered by Social Security that is below the applicable annual taxable maximum.

[*Value corrected on July 22, 2016]

Table 2-1.

**Financial Measures for Social Security**

| Projection Period (Calendar years) | Income Rate | Cost Rate | Actuarial Balance (Difference) |
|---|---|---|---|
| | | As a Percentage of Taxable Payroll | |
| 25 Years (2016 to 2040) | 14.9 * | 18.0 | -3.1 * |
| 50 Years (2016 to 2065) | 14.1 * | 18.3 | -4.1 * |
| 75 Years (2016 to 2090) | 13.9 * | 18.6 | -4.7 * |
| | | As a Percentage of Gross Domestic Product | |
| 25 Years (2016 to 2040) | 5.1 * | 6.1 | -1.1 |
| 50 Years (2016 to 2065) | 4.7 | 6.1 | -1.4 |
| 75 Years (2016 to 2090) | 4.6 | 6.2 | -1.6 |

[*Values corrected on July 22, 2016]

Source: Congressional Budget Office.

These projections incorporate the assumption that spending for Social Security continues as scheduled even if its trust funds are exhausted. Through 2046, the projections incorporate macroeconomic feedback caused by rising federal debt and marginal tax rates. After 2046, they do not account for such feedback.

Over each projection period, the income rate is the present value of annual tax revenues plus the initial trust fund balance, and the cost rate is the present value of annual outlays plus the present value of a year's worth of benefits as a reserve at the end of the period, each divided by the present value of taxable payroll or gross domestic product. (The present value of a flow of revenues or outlays over time is a single number that expresses that flow in terms of an equivalent sum received or paid at a specific time. The present value depends on a rate of interest, known as the discount rate, that is used to translate past and future cash flows into current dollars.) The actuarial balance is the difference between the income and cost rates.

To be consistent with the approach used by the Social Security trustees, the 25-, 50-, and 75-year projection periods for the financial measures reported here include 2016 and end in 2040, 2065, and 2090, respectively.

(see Table 2-1).[12] In other words, it would be possible to pay the benefits prescribed by current law and maintain the necessary trust fund balances through 2090 if payroll taxes were raised immediately and permanently by about 4.7* percent of taxable payroll, scheduled benefits were reduced by an equivalent amount, or some combination of tax increases and spending reductions of equal present value was adopted.[13]

The estimates of the actuarial shortfall do not account for revenues or outlays after the 75-year projection period. A policy that either increased revenues or reduced outlays by the same percentage of taxable payroll each year needed to eliminate the 75-year shortfall would not necessarily place Social Security on a permanently stable financial path. Because shortfalls are smaller earlier in the 75-year projection period than they are later on, such a policy would create surpluses in the next several decades but result in deficits later and leave the system financially unbalanced after calendar year 2090.

The measure of actuarial balance used here is called the 75-year open-group unfunded obligation because, without a change in law, the program would continue to admit new participants. The open-group measure accounts for taxes paid by workers annually until 2090 but does not consider the benefits that would be paid to those workers thereafter. Those new participants would

12. To be consistent with the 75-year actuarial balance reported by the Social Security trustees, the 75-year projection period used here begins in calendar year 2016 and ends in calendar year 2090. The Social Security trustees have estimated that the program's 75-year actuarial shortfall would be 2.7 percent of taxable payroll, 2.0* percentage points smaller than CBO's projection. The larger shortfall projected by CBO primarily stems from differences in the projections of interest rates and taxable payroll. Differences in projections involving life expectancy, fertility, and growth in the consumer price index also contribute (see Appendix A). For details on the trustees' projections, see Social Security Administration, *The 2016 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (June 2016), www.ssa.gov/oact/tr/2016.

13. The calculation of the actuarial balance excludes the effects of any macroeconomic feedback that would result from an increase in taxes or a reduction in benefits.

[*Values corrected on July 22, 2016]

pay much more in taxes over the next 75 years than they would receive in benefits during that period.

An alternative measure—sometimes called the closed-group unfunded obligation—shows the shortfall in the system that would occur if Social Security excluded anyone currently under the age of 15, thereby encompassing future taxes paid and benefits received only by people who are now age 15 or older. (Similar assessments are made of the financial outlook for private pension plans.) CBO estimates that, when measured as a percentage of taxable payroll, the 75-year closed-group shortfall as of 2016 is about two-thirds larger than the 75-year open-group shortfall.

Another commonly used measure of Social Security's sustainability is a trust fund's date of exhaustion. CBO projects that, under current law, the DI trust fund would be exhausted in fiscal year 2022 and the OASI trust fund would be exhausted in calendar year 2030. Because it is a common analytical convention to consider the DI and OASI trust funds as combined, even though legally they are separate, this discussion focuses on them as one entity. In CBO's extended baseline, the combined OASDI trust funds are projected to be exhausted in calendar year 2029.

If a trust fund's balance declined to zero and receipts were insufficient to cover benefits specified in law, the Social Security Administration would no longer have legal authority to pay full benefits when they were due. In the years after a trust fund's exhaustion, annual outlays therefore could not exceed annual revenues. Under those circumstances, all receipts to the trust fund would be used and the trust fund balance would remain essentially at zero.[14]

Social Security benefits can be projected in two ways: as payable benefits, which conform to the limits imposed by a trust fund's balance and annual revenues, or as scheduled benefits, which reflect the benefit formulas specified in law, regardless of a trust fund's balance. This report uses the latter approach, which is consistent with a statutory requirement that CBO, in its 10-year baseline projections, assume that funding for entitlement programs is adequate to make all payments required by law.[15] In 2030, the year after the combined trust funds are expected to be exhausted, revenues are projected to equal 71 percent of scheduled outlays. Under those circumstances, payable benefits would be 29 percent less than scheduled benefits.

### Social Security Benefits and Payroll Taxes, Depending on Birth Cohort

The amount people pay in Social Security taxes and the amount they receive in benefits over a lifetime depend on when they were born.[16] Under current law, taxes and benefits alike are anticipated to be higher for people in later birth cohorts because real earnings are projected to continue to rise. Continuing increases in life expectancy also would contribute to growth in lifetime benefits because later cohorts are projected to live to receive Social Security benefits for longer periods.

To compare Social Security benefits and taxes across generations for this analysis, CBO calculated lifetime Social Security benefits and payroll taxes as the present value—discounted to the year in which a beneficiary turns 65 and expressed in 2016 dollars—of all such benefits that workers would receive from the program or all payroll taxes they would pay to the program.[17] CBO measured the present value of benefits or taxes relative to the present

14. Noah P. Meyerson, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report for Congress RL33514 (Congressional Research Service, August 2014), available from the U.S House of Representatives, Committee on Ways and Means, *2014 Green Book*, Chapter 1: Social Security, "Social Security Congressional Research Service Reports" (accessed July 8, 2016), http://go.usa.gov/cCXcG. That report notes the entitlement created under the Social Security Act, cites other law that prohibits officials from making expenditures in excess of available funds, and acknowledges that the two create a potential conflict that must be resolved by the Congress or in the courts.

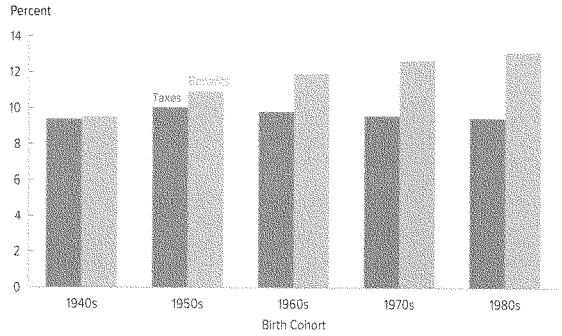
15. Sec. 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985, Public Law 99-177 (codified at 2 U.S.C. §907(b)(1) (2012)).

16. For analysis of the distribution of Social Security benefits and taxes according to CBO's 2015 long-term projections, see Congressional Budget Office, *CBO's 2015 Long-Term Projections for Social Security: Additional Information* (December 2015), Exhibits 9–14, www.cbo.gov/publication/51047.

17. For this analysis, payroll taxes include the combined shares paid by employers and employees. Benefits are net of income taxes paid on those benefits. They include all benefits except those paid to young widows and children. For a discussion of methods, see Congressional Budget Office, *CBO's 2015 Long-Term Projections for Social Security: Additional Information* (December 2015), Appendix, www.cbo.gov/publication/51047.

Figure 2-3.

**Mean Lifetime Social Security Taxes and Scheduled Benefits as a Percentage of Lifetime Earnings**




Because increased life expectancy leads to longer retirements, people in later birth cohorts will receive more from Social Security over a lifetime than those born earlier, even though they will generally contribute a smaller share of their earnings to payroll taxes.

Source: Congressional Budget Office.

This analysis includes only people who live at least to age 45. Payroll taxes consist of the employer's and employee's shares combined.

Lifetime Social Security benefits are net of income taxes paid on those benefits. They include all benefits except those paid to young widows and children.

Scheduled benefits are benefits calculated under the Social Security Act, regardless of the balances in the program's trust funds.

value of lifetime earnings, with all values adjusted for inflation (see Figure 2-3). That analysis led to the following conclusions:

- Real average lifetime scheduled benefits as a percentage of lifetime earnings will generally be greater for each birth cohort than for the preceding one because life expectancy is projected to increase. Thus, mean lifetime benefits for people born in the 1950s are projected to be about 11 percent of their lifetime earnings. For people born in the 1980s, that proportion will be 13 percent if they receive scheduled benefits.
- For two reasons, real average lifetime payroll taxes for each birth cohort relative to lifetime earnings will generally be slightly less than those for the preceding cohort: First, under current law, Social Security payroll taxes are a fixed share of earnings below the taxable maximum, and second, the portion of earnings that is subject to Social Security tax is projected to fall. Thus, the mean amount of lifetime payroll taxes for people born in the 1950s is projected to be 10 percent of their lifetime earnings. For people born in the 1980s, that amount will be 9 percent.

CHAPTER

3

# The Long-Term Outlook for the Major Federal Health Care Programs

Although spending for health care in the United States has grown more slowly in recent years than it did previously, high and rising amounts of such spending continue to pose a challenge, not only for the federal government, but also for state and local governments, businesses, and households. Federal spending for the major health care programs rose from 2.0 percent of gross domestic product (GDP) in 1985 to 5.3 percent in 2015. Over approximately that same period, total national spending on health care services and supplies—that is, health care spending by all public and private sources combined—also increased, from 9.5 percent of GDP in 1985 to 16.6 percent, or about one-sixth of the economy, in calendar year 2014, the most recent year for which such data are available.[1]

One significant factor underlying those trends is that, on a per-person basis, health care spending has grown faster, on average, than the nation's economic output over the past few decades. The Congressional Budget Office estimates that growth in health care spending per person outpaced growth in potential (or maximum sustainable) GDP per person by an average of 1.4 percent per year between calendar years 1985 and 2014.[2] Key factors contributing to that faster growth were the emergence and increasing use of new medical technologies, rising personal income, and (to a lesser extent in recent years) the declining share of health care costs that people paid out of pocket. The effects of those factors were partly offset by those of other developments, including the increased prevalence of managed care plans in the 1990s, the 2007–2009 recession, and various legislated changes in Medicare's payment policies.

Outlays for the major health care programs consist of spending for Medicare, Medicaid, and the Children's Health Insurance Program (CHIP), as well as spending on subsidies for health insurance purchased through the marketplaces established under the Affordable Care Act (ACA) and related spending.[3] CBO expects that, under current law, federal spending on those programs would continue to rise substantially in relation to GDP.[4] In CBO's extended baseline, net federal spending for those programs grows from an estimated 5.5 percent of GDP in 2016 to 8.9 percent in 2046: Net spending for Medicare

1. Centers for Medicare & Medicaid Services, National Health Expenditure Accounts, "National Health Expenditures by Type of Service and Source of Funds, CY 1960–2014" (accessed March 30, 2016), http://go.usa.gov/jmGY.

2. As is explained later in this chapter, CBO derived that estimate after adjusting for demographic changes and giving greater weight to more recent years (to more closely reflect current trends in spending for health care).

3. Spending related to subsidies for insurance purchased through the marketplaces (formerly called exchanges in CBO's publications) includes spending for subsidies for insurance provided through the Basic Health Program, spending for the risk-adjustment and reinsurance programs that were established by the ACA to stabilize premiums for health insurance purchased by individuals and small employers, and spending to provide grants to states for establishing a marketplace.

4. Federal spending on those programs is mandatory; that is, it results from budget authority provided in laws other than appropriation acts. Federal discretionary spending on health care—that is, spending that is subject to annual appropriations—is not included in the budget projections described here; rather, it is included in projections for other noninterest spending (see Chapter 4). Such discretionary spending includes spending for health research and for health care provided by the Veterans Health Administration. Some mandatory spending on health care (for example, spending for health insurance for federal retirees) is included in other noninterest spending; that mandatory spending represents a very small share of the federal budget.

amounts to 5.7 percent of GDP that year, and spending on Medicaid and CHIP, combined with outlays for subsidies for insurance purchased through the marketplaces and related spending, equals 3.1 percent.[5]

The extent of growth in federal spending on health care in coming years will depend on many factors, including demographic changes and the behavior of households, businesses, and state and local governments. (It will also depend on federal laws and could thus be influenced by changes in those laws, but CBO's extended baseline projections, which cover the 30-year period ending in 2046, are based on the assumption that current laws generally will not change.) The first 10 years of CBO's extended baseline projections of federal health care spending match its 10-year baseline projections.[6] For the remaining 20 years of the projection period, CBO uses a formulaic approach to project such spending because health care delivery and financing systems could evolve in a number of different ways in the long run. Specifically, the agency combined estimates of the number of people who will receive benefits from those government health care programs with fairly mechanical estimates of the growth of spending per beneficiary:

- The number of people receiving benefits from the major federal health care programs is, under current law, projected to increase during the next few decades. The most important factor contributing to that increase is the aging of the population—particularly of the large baby-boom generation—which will increase the number of people who receive benefits from Medicare by about one-third over the next decade.

- The growth of spending per beneficiary relative to the growth of potential GDP per person in most of the major health care programs is generally projected to move from the average rate projected for the years 2024 through 2026 (with certain adjustments) to 1.0 percent in 2046, or about three-quarters of the average from 1985 to 2014. CBO projects that the growth rate will be lower in the future than it has been in the past for two reasons: The agency anticipates that people will limit their spending for health care to maintain their consumption of other goods and services, and it expects that state governments, private insurers, employers, and the Centers for Medicare & Medicaid Services (CMS) will respond to the pressures of rising health care costs by taking steps to slow spending growth.

Those projections are subject to considerable uncertainty (as Chapter 7 explains). One challenge, in particular, is assessing how much of the recent slowdown in the growth of health care spending can be attributed to temporary factors, such as the recession, and how much reflects more enduring developments. Several studies have concluded that the slowdown is not entirely the result of the weak economy, but they differ considerably in their assessment of other factors' importance.[7] CBO's own analysis found no direct link between the recession and slower growth in Medicare spending.[8] Accordingly, over the past several years, the agency has substantially reduced its 10-year and long-term projections of Medicare and Medicaid spending per beneficiary.

## Overview of the Major Federal Health Care Programs

Health care in the United States is financed by a combination of private and public sources, mostly through various forms of health insurance. Many people obtain insurance through government programs such as Medicare, Medicaid, and CHIP. In addition, most private health insurance coverage is subsidized through the federal tax code, which allows employers and employees to exclude their shares of the cost of employment-based coverage from income and payroll taxes, or through refundable tax credits for people who purchase coverage through the health insurance marketplaces established by

5. Net federal spending for Medicare refers to gross spending for Medicare minus offsetting receipts (mostly premiums paid by beneficiaries to the government), which are recorded in the budget as offsets to spending. Net federal spending for all major federal health care programs refers to gross spending for all those programs minus offsetting receipts for Medicare.

6. The 10-year baseline referred to in this chapter is the one issued in March 2016. See Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384.

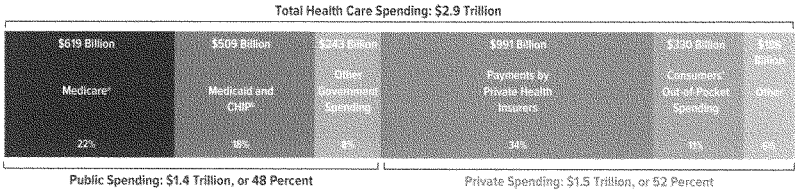
7. See, for example, Amitabh Chandra, Jonathan Holmes, and Jonathan Skinner, "Is This Time Different? The Slowdown in Health Care Spending," *Brookings Papers on Economic Activity* (Fall 2013), pp. 261–323, http://tinyurl.com/zt8w5v2.

8. Michael Levine and Melinda Buntin, *Why Has Growth in Spending for Fee-for-Service Medicare Slowed?* Working Paper 2013-06 (Congressional Budget Office, August 2013), www.cbo.gov/publication/44513.

Figure 3-1.

**National Spending for Health Care, 2014**

Total health care spending amounted to $2.9 trillion in calendar year 2014, about half of which was private spending. The federal government subsidizes a substantial part of that private spending, primarily through the tax exclusion for employment-based health insurance.




Source: Congressional Budget Office, using data from the Centers for Medicare & Medicaid Services.

CHIP = Children's Health Insurance Program.

a. Refers to gross spending for Medicare, which does not account for offsetting receipts that are credited to the program. Those offsetting receipts are mostly premium payments made by beneficiaries to the government.

b. Includes federal and state spending.

the ACA.[9] This chapter focuses on federal spending (or outlays) for health insurance; the effects of tax provisions related to health insurance on federal revenues are included in the projections presented in Chapter 5.

In calendar year 2016, on an average monthly basis, 57 million people will be enrolled in Medicare, 77 million will be enrolled in Medicaid, about 6 million will be enrolled in CHIP, and about 12 million will be covered by insurance purchased through the marketplaces, CBO estimates. Among people who are under age 65, most—about 155 million—will have private health insurance obtained through an employer, roughly 9 million will be covered by a nongroup policy purchased directly from an insurer, and about 27 million (or 10 percent of the under-65 population) will be uninsured, CBO and the staff of the Joint Committee on Taxation (JCT) estimate.[10]

In calendar year 2014, national spending for health care was an estimated $2.9 trillion (see Figure 3-1).[11] Of that amount, 52 percent was initially financed by private

9. CBO and the Joint Committee on Taxation estimate that the tax preferences that subsidize employment-based coverage for people under age 65 will total about $268 billion in 2016—a sum that is roughly equal to federal spending in that year for Medicaid benefits provided to noninstitutionalized people under age 65. For more information, see Congressional Budget Office, *Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2016 to 2026* (March 2016), www.cbo.gov/publication/51385.

10. See Congressional Budget Office, *Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2016 to 2026* (March 2016), www.cbo.gov/publication/51385. The sum of those estimates exceeds CBO's estimate of the total population because some people will have multiple sources of coverage and CBO has not assigned a primary source to such people. For example, currently, about 8.5 million people with Medicaid coverage are also covered by Medicare, which is their primary source of coverage. For information about people eligible for benefits through both programs, see Congressional Budget Office, *Dual-Eligible Beneficiaries of Medicare and Medicaid: Characteristics, Health Care Spending, and Evolving Policies* (June 2013), www.cbo.gov/publication/44308.

11. This report defines national spending for health care as the health consumption expenditures in the national health expenditure accounts maintained by the Centers for Medicare & Medicaid Services. That definition excludes spending on medical research, structures, and equipment but includes administrative costs for insurers and all spending on medical goods and services. With spending for those excluded categories added to the total, national spending for health care was $3.0 trillion in calendar year 2014. For more information, see Anne B. Martin and others, "National Health Spending in 2014: Faster Growth Driven by Coverage Expansion and Prescription Drug Spending," *Health Affairs*, vol. 35, no. 1 (January 2016), pp. 150–160, http://dx.doi.org/10.1377/hlthaff.2015.1194.

sources—34 percent came from private health insurers; 11 percent, from consumers in the form of out-of-pocket spending; and 6 percent, from other sources of private funds, such as philanthropy.[12] The remaining 48 percent of national spending on health care was public: Gross federal spending for Medicare accounted for 22 percent of the total; federal and state spending for Medicaid and CHIP, for 18 percent; and spending on various other programs (including those run by state and local governments' health departments, by the Department of Veterans Affairs, and by the Department of Defense), for 8 percent.

### Medicare

In 2016, according to CBO's estimates, Medicare will provide health insurance to about 57 million people who are at least 65 years old, are disabled, or have end-stage renal disease. Most people become eligible for Medicare when they reach 65; about 85 percent of enrollees are 65 or over. Disabled people generally become eligible 24 months after they qualify for benefits under Social Security's Disability Insurance program.[13]

The Medicare program provides a specified set of benefits. Hospital Insurance (HI), or Medicare Part A, covers inpatient hospital services, care provided in skilled nursing facilities, home health care, and hospice care. Part B mainly covers services provided by physicians, other practitioners, and hospitals' outpatient departments. Part D provides a prescription drug benefit, which is administered by private insurance plans.

Most enrollees in Medicare are in the traditional fee-for-service program, in which the federal government pays for covered services under Parts A and B directly, but about 30 percent have opted for Part C of the program, known as Medicare Advantage, in which they receive Medicare benefits through a private health insurance plan. In 2015, gross spending for Medicare was $634 billion, and net spending (that is, gross spending minus offsetting receipts, which mostly consist of beneficiaries' premium payments to the government) was $540 billion.

Parts A, B, and D of the program are financed in different ways. Outlays for Part A are financed by dedicated sources of income credited to a fund called the Hospital Insurance Trust Fund. The primary source is a payroll tax (amounting to 2.9 percent of all earnings); the other sources are a 0.9 percent tax on earnings over $200,000 (or $250,000 for married couples) and a portion of the federal income taxes paid on Social Security benefits.[14] For Part B, premiums paid by beneficiaries cover just over one-quarter of outlays, and the government's general fund covers the rest. Enrollees' premiums under Part D are set to cover about one-quarter of the cost of the basic prescription drug benefit (although many low-income enrollees pay no premiums), and the general fund covers most of the rest. Federal payments to private insurance plans under Part C comprise a blend of funds drawn from Parts A, B, and D. All told, in 2015, about 40 percent of gross federal spending on Medicare was financed by the HI trust fund's dedicated taxes, about 15 percent came from offsetting receipts, and the rest came from other sources (mostly transfers from the general fund), CBO estimates.

In the fee-for-service portion of Medicare, beneficiaries' cost-sharing obligations (that is, what they are obliged to pay out of pocket) vary widely by type of service, and the program does not set an annual limit on the health care costs for which beneficiaries are responsible. However, the great majority of beneficiaries—about 84 percent of them in 2011, according to one recent study—have supplemental insurance that covers many or all of the program's cost-sharing requirements.[15] The most common sources of supplemental coverage are plans for retirees offered by former employers, Medicare Advantage plans, individually purchased policies (called medigap insurance), and Medicaid.

12. For the purposes of that analysis, out-of-pocket payments include payments made to satisfy cost-sharing requirements for services covered by insurance as well as payments for services not covered by insurance. They do not, however, include the premiums that people pay for health insurance—because premiums fund the payments that insurers provide, which have already been accounted for.

13. People with amyotrophic lateral sclerosis (also known as Lou Gehrig's disease) and those with end-stage renal disease are exceptions: Those with Lou Gehrig's disease become eligible when their Disability Insurance benefits start; those with end-stage renal disease usually become eligible for Medicare on the first day of the fourth month of dialysis treatment.

14. The thresholds for the 0.9 percent tax are not indexed for inflation. Certain people are subject to an additional 3.8 percent tax on unearned income that is officially labeled a Medicare tax even though the revenues are credited to the government's general fund rather than to the HI trust fund.

15. Medicare Payment Advisory Commission, *A Data Book: Health Care Spending and the Medicare Program* (June 2015), p. 23, http://go.usa.gov/xqRnk (PDF, 1.7 MB).

The Medicare program includes a number of incentives and mechanisms that could reduce spending growth in the program over time:

- The program's premiums and cost sharing will consume a growing share of beneficiaries' income—because the growth of health care spending in general is projected to outpace the growth of income—and that will constrain demand for some Medicare services.
- The rules governing the annual updates that are made to Medicare's payment rates for health care services will generally cause those updates to be smaller than the increases in the prices of inputs (namely, labor, supplies, capital equipment, and facilities) used to deliver care.
- Changes being made in the structure of Medicare's payments to providers, such as financial incentives to reduce hospital-acquired infections and readmissions, may help hold down federal spending.
- The Center for Medicare & Medicaid Innovation, an arm of CMS, is testing ways to modify rules and payment methods that could reduce costs without impairing the quality of health care; the changes that prove effective may be expanded by the Secretary of Health and Human Services (HHS).
- If the rate of growth in spending per beneficiary is projected to exceed specified targets in certain years, an Independent Payment Advisory Board is required to submit a package of changes in program rules that would reduce Medicare spending in those years, and the Secretary of HHS is required to implement those changes.[16]

### Medicaid

A joint federal-state program, Medicaid pays for health care services, mostly for low-income people. In any given month in 2016, an average of about 77 million people will be enrolled in Medicaid, CBO estimates. Nearly half of Medicaid's current enrollees are children in low-income families, slightly more than one-third are adults under age 65 who are not disabled, and the remaining one-fifth or so are people who are at least 65 or who are disabled. Expenses for beneficiaries who are 65 or older or who have disabilities, many of whom require long-term care, tend to be higher than those for other beneficiaries. In 2015, almost one-quarter of federal spending for Medicaid benefits was for long-term services and supports, a category that includes institutional care provided in nursing homes and certain other facilities as well as care provided in a person's home or in the community. In that year, people age 65 or older and people with disabilities accounted for about half of federal spending for Medicaid benefits.[17]

States administer their Medicaid programs under federal guidelines that mandate a minimum set of services that must be provided to certain categories of low-income people. The required services include inpatient and outpatient hospital services, services provided by physicians and laboratories, comprehensive and preventive health care services for children, nursing home and home health care, and transportation. The required eligibility categories include families that would have met the financial requirements of the Aid to Families With Dependent Children program when it existed, people age 65 or over and disabled people who qualify for the Supplemental Security Income program, and children and pregnant women in families with income below 138 percent of the federal poverty guidelines (also known as the federal poverty level, or FPL).[18]

In addition, under an option created by the ACA, states are permitted but not required to expand eligibility for Medicaid to adults under age 65 whose income is equal to or less than 138 percent of the FPL.[19] By the end of

16. If the board failed to submit a package of program changes that would achieve the target savings, the Secretary would be required to develop and implement such changes.

17. Congressional Budget Office, "Baseline Projections for Selected Programs: Medicaid" (March 2016), www.cbo.gov/publication/51301.

18. In 1996, the Aid to Families With Dependent Children (AFDC) program, which provided cash assistance to low-income families, was replaced by the Temporary Assistance for Needy Families (TANF) program. Under AFDC rules, recipients generally received Medicaid benefits automatically. When TANF replaced AFDC, TANF recipients did not automatically qualify for Medicaid, but the Congress established a new category under Medicaid whose eligibility criteria matched the former AFDC criteria. The FPL is currently $24,300 for a family of four. See Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, "Poverty Guidelines" (January 2016), https://aspe.hhs.gov/poverty-guidelines.

19. The statute specifies a threshold of 133 percent of the FPL, but an automatic deduction to income equal to 5 percent of the FPL effectively makes the threshold 138 percent of the FPL.

calendar year 2015, 30 states and the District of Columbia had expanded their programs; about half of the people who meet the new eligibility criteria reside in those states, CBO estimates.[20]

As long as they meet federal requirements, state governments have substantial flexibility to determine eligibility, benefits, and payments to providers under Medicaid. They may choose to make additional groups of people eligible (such as people who have income above the usual eligibility thresholds but whose medical expenses exceed a certain portion of their income) or to provide additional benefits (such as coverage for prescription drugs and dental services). Moreover, many states seek and receive waivers of federal statutory limitations that allow them to provide benefits and cover groups that would otherwise be excluded.

The federal government's share of spending for Medicaid benefits varies by state. That share averaged about 57 percent for many years, but it has increased in recent years. For those enrollees who were made eligible by the ACA, the federal government will pay all costs through 2016, a slightly declining share of costs each year from 2017 to 2019, and 90 percent of costs in 2020 and beyond.

In 2015, federal spending for Medicaid amounted to $350 billion. Of that amount, $319 billion went to benefits for enrollees, and the remainder covered payments to hospitals that served a disproportionate share of Medicaid patients and uninsured, low-income patients; costs for the Vaccines for Children program; and administrative expenses.[21] States spent $205 billion on Medicaid that year, CBO estimates.[22]

### Children's Health Insurance Program

CHIP, a much smaller joint federal-state program, provides health insurance coverage for children in families whose income, though modest, is too high for them to qualify for Medicaid. States have discretion to determine the income threshold for eligibility, but it generally falls between 138 percent and 300 percent of the FPL. Nearly 6 million people will be enrolled in the program, on average, during 2016. Like Medicaid, CHIP is administered by the states within broad federal guidelines. Unlike Medicaid, however, CHIP has a fixed nationwide limit on federal spending. In 2015, federal spending on CHIP was $9.2 billion.[23] The federal share of CHIP spending varies among the states but usually averages about 70 percent.[24]

### Subsidies for Insurance Purchased Through the Health Insurance Marketplaces

Many people can buy subsidized insurance through the marketplaces operated by the federal government, state governments, or partnerships between federal and state governments. There are two kinds of subsidies: tax credits to help pay for premiums and cost-sharing subsidies to reduce out-of-pocket expenses, such as deductibles and copayments. The premium tax credits are refundable: A large portion is paid to taxpayers and categorized as outlays, and a smaller portion reduces taxes paid, which in turn reduces income tax revenues. To qualify for the premium tax credits, a person generally must have household income between 100 percent and 400 percent of the FPL and must not have access to certain other sources of health insurance coverage, including coverage through an employer that meets the law's definition of affordable and coverage from a government program, such as Medicare or Medicaid. To qualify for the cost-sharing subsidies, a person must meet the requirements for the premium tax credits, enroll in what the law defines as a silver plan (which covers about 70 percent of the cost of covered benefits), and have household income below 250 percent of the FPL.

The size of a person's premium tax credit is the difference between the cost of the second-lowest-cost silver plan available to him or her and a specified percentage of his or her household income. For example, for calendar year

20. Congressional Budget Office, *Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2016 to 2026* (March 2016), www.cbo.gov/publication/51385.

21. The Vaccines for Children program helps provide vaccines to those children under age 19 whose parents or guardians may not be able to afford them. The eligible group includes people who are Medicaid-eligible or uninsured.

22. CBO's calculations rely on unpublished data from states' filings of Form CMS-64 for fiscal year 2015. States use that form to report their quarterly spending for Medicaid benefits and administrative activities to CMS.

23. Congressional Budget Office, "Baseline Projections for Selected Programs: Children's Health Insurance Program" (March 2016), www.cbo.gov/publication/51296.

24. For fiscal years 2016 through 2019, the federal share of CHIP spending is expected to average 93 percent, reflecting a temporary 23 percentage-point increase in the federal share of spending for that program.

2016, the tax credit was set so that people with income between 100 percent and 133 percent of the FPL would pay 2.03 percent of their income to enroll in the second-lowest-cost silver plan, while people with higher income would pay a larger share of their income, up to 9.66 percent for those with income between 300 percent and 400 percent of the FPL. If a person's premium for such a plan is less than the applicable percentage of income, that person receives no tax credit. The amounts that enrollees must pay are indexed so that the subsidies cover roughly the same portion of the premiums over time. After calendar year 2018, however, an additional indexing factor may apply in some years; if that factor applied, the share of the premiums that enrollees paid would increase, and the share of the premiums that the subsidies covered would decline.[25]

Spending related to subsidies for insurance purchased through the marketplaces consists of outlays for the risk-adjustment and reinsurance programs.[26] Those programs were established under the ACA to stabilize premiums in the nongroup and small-group insurance markets by reducing the likelihood that particular health insurers would bear especially high costs for having a disproportionate share of less healthy enrollees. The programs make payments to insurers that reflect differences in the health status of each insurer's enrollees and in the resulting costs to insurers. Payments for the risk-adjustment program are financed by collections from insurers with healthier enrollees, and those for reinsurance are funded by an assessment on a broad range of insurers. Those payments are recorded in the budget as mandatory outlays, and the collections are recorded as revenues.

CBO and JCT estimate that during calendar year 2016, an average of about 12 million people will be covered by insurance purchased through the marketplaces each month and that about 10 million of them, on average, will receive subsidies. An additional 1 million people are estimated to participate in the Basic Health Program, which offers subsidies to certain low-income people.[27] In fiscal year 2015, outlays for those subsidies and related spending were about $38 billion, CBO and JCT estimate.[28] (The agencies estimate that the subsidies and related programs also added between $8 billion and $9 billion to revenues that year. That effect consists of an increase in revenues of about $11 billion from payments collected under the risk-adjustment and reinsurance programs, offset in part by a $2 billion to $3 billion reduction in taxes paid resulting from premium subsidies. Those effects on revenues are included in the projections discussed in Chapter 5.)

## CBO's Method for Making Long-Term Projections of Federal Health Care Spending

CBO's extended baseline projections of federal spending on the major health care programs, like the rest of the agency's extended baseline projections, generally reflect the provisions of current law. The first 10 years of projections in the extended baseline match the agency's 10-year baseline projections, which are based on a detailed analysis of the major health care programs. Beyond the coming decade, however, projecting federal spending on health care becomes increasingly difficult because of the considerable uncertainties involved. A wide range of changes could occur—in people's health, in the sources and extent of their insurance coverage, and in the delivery of medical care—that are almost impossible to predict but that could nevertheless have a significant effect on federal health care spending.

Therefore, for the projections beyond 2026, CBO has adopted a formulaic approach—one that combines estimates of the number of people who will receive benefits from government health care programs with fairly mechanical projections of growth in spending per beneficiary

25. The additional indexing factor will apply in any calendar year after 2018 in which the total costs of the subsidies for health insurance purchased through the marketplaces exceed a specified percentage of GDP. CBO expects that the indexing factor may apply in some years, although the uncertainty of projections of both the subsidies and GDP make the timing unclear. For an explanation of the indexing factor, see Congressional Budget Office, *Additional Information About CBO's Baseline Projections of Federal Subsidies for Health Insurance Provided Through Exchanges* (May 2011), www.cbo.gov/publication/41464.

26. Between 2016 and 2018, spending related to subsidies also includes a small amount of outlays for grants to states for establishing the marketplaces.

27. The Basic Health Program, which was created under the ACA, allows states to establish a coverage program primarily for people with income between 138 and 200 percent of the FPL. To subsidize that coverage, the federal government provides states with funding equal to 95 percent of the subsidies for which those people would have been eligible if they had instead purchased coverage through a marketplace.

28. See Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), Table 4, www.cbo.gov/publication/51384.

Table 3-1.

**Average Annual Rates of Excess Cost Growth in Spending for Health Care**

Percent

| | Medicare | Medicaid | Other[a] | Overall[b] |
|---|---|---|---|---|
| 1975 to 2014 | 1.9 | 1.7 [c] | 1.8 | 1.8 |
| 1980 to 2014 | 1.6 | 1.4 | 1.7 | 1.6 |
| 1985 to 2014 | 1.4 | 1.0 | 1.5 | 1.4 |
| 1990 to 2014 | 1.2 | 0.6 | 1.3 | 1.2 |

Source: Congressional Budget Office, using data from the Centers for Medicare & Medicaid Services.

Excess cost growth refers to the extent to which the growth rate of nominal health care spending per person—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential GDP per person. (Potential GDP is the maximum sustainable output of the economy.) The historical rates of excess cost growth are weighted averages of annual rates: Twice as much weight is placed on the latest year as on the earliest year.

GDP = gross domestic product.

a. To calculate these values, CBO began with overall excess cost growth and removed the effects of excess cost growth for Medicare and Medicaid. The values therefore include the excess cost growth of payments by private health insurers and of other health care spending, such as consumers' out-of-pocket spending and spending financed by other private and public sources.

b. Refers to the excess cost growth of national spending for health care—specifically, to the excess cost growth of the health consumption expenditures in the national health expenditure accounts maintained by the Centers for Medicare & Medicaid Services.

c. Shows the average rate from 1976 to 2014 because data for 1975 are unavailable.

(adjusted to account for demographic changes in the beneficiaries of each program). CBO has estimated such growth by combining projected growth in potential GDP per person and projected excess cost growth for the program in question. (From 2017 to 2026, potential GDP per person is projected to grow at an average rate of about 3.2 percent per year; from 2017 to 2046, the average growth rate is projected to be about 3.5 percent.)

Excess cost growth is the growth rate of health care spending per person (after the effects of demographic changes are removed) relative to the growth rate of potential GDP per person.[29] The *excess* in excess cost growth is not intended to imply that growth in health care spending per person is necessarily excessive or undesirable; the term is simply used to describe the extent to which the growth in such spending *exceeds* the growth in potential output per person. According to CBO's calculations, average rates of excess cost growth for various parts of the health care system have ranged from 0.6 percent to 1.9 percent over different periods of the past several decades (see Table 3-1).[30] Although such rates are quite variable from year to year, they have generally declined. Excess cost growth has been especially low, on average, during two periods—the mid-to-late 1990s and from the mid-2000s to 2014 (the most recent year for which such data are available).

In CBO's extended baseline, the projected rates of excess cost growth for Medicare, Medicaid, and private health insurance premiums slowly converge after 2026, from the rates derived from the detailed 10-year baseline projections toward a rate of 1.0 percent—which is CBO's projection of the rate of excess cost growth for the health care sector 30 years from now. All told, annual rates of excess cost growth from 2017 to 2046 are projected to average 0.9 percent for Medicare, 1.0 percent for Medicaid, and 1.6 percent for private health insurance premiums.

### Excess Cost Growth During the Next Decade

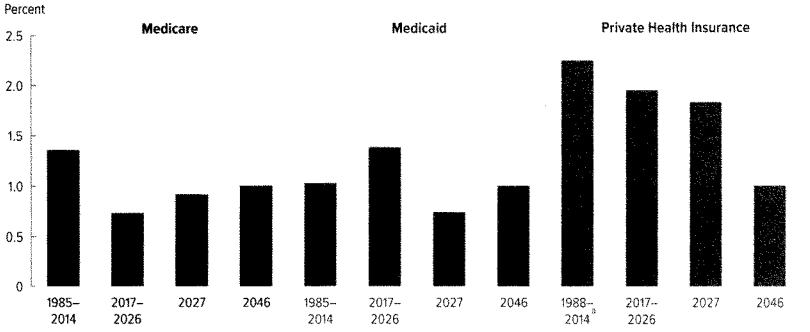
For 2017 through 2026, the projected rates of excess cost growth for Medicare, Medicaid, and private health insurance premiums in CBO's extended baseline are derived from CBO's 10-year baseline (see Figure 3-2). Those rates are as follows:

29. CBO uses potential GDP rather than actual GDP in its estimate of excess cost growth to limit the effect of cyclical changes in the economy on its estimate.

30. The historical rates of excess cost growth are a weighted average of annual rates: Twice as much weight was placed on the latest year as on the earliest year. In calculating excess cost growth for Medicare, CBO made adjustments to account for changes in the age distribution of beneficiaries. In calculating excess cost growth for Medicaid, CBO adjusted the rates to account for changes in the program's case mix—that is, the proportions of types of beneficiaries, including children, people at least 65 years old, people with disabilities, and adults who did not fall into any of those categories—rather than for changes in the age distribution of beneficiaries. The rates of excess cost growth that have been adjusted to account for demographic changes reflect changes in spending per person rather than changes in the number or composition of beneficiaries. The introduction of Medicare's Part D drug benefit in 2006 resulted in a onetime shift in some spending from Medicaid to Medicare; to adjust for that shift, CBO assumed that excess cost growth in 2006 for both Medicare and Medicaid was equal to the average of excess cost growth in the two programs for that year.

Figure 3-2.

**Estimated and Projected Rates of Excess Cost Growth in Spending for Health Care**




Source: Congressional Budget Office, using data from the Centers for Medicare & Medicaid Services.

Excess cost growth refers to the extent to which the growth rate of nominal health care spending per person—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential GDP per person. (Potential GDP is the maximum sustainable output of the economy.) The historical rates of excess cost growth are weighted averages of annual rates: Twice as much weight is placed on the latest year as on the earliest year.

GDP = gross domestic product.

a. Shows excess cost growth beginning in 1988 because data for earlier years are unavailable.

- For Medicare, the average annual rate of excess cost growth implicit in CBO's baseline projections is about 0.7 percent, meaning that Medicare spending per beneficiary (adjusted for demographic changes) is projected to grow faster than potential GDP per person over the next 10 years.[31] CBO projects that rate of growth, which is below the average rate since 1985, in part because the agency anticipates that the use of Medicare services will continue to grow at a slow rate, as it has in recent years. In addition, under current law many of the annual updates to Medicare's payment rates will be smaller than they have been in the past. Consequently, excess cost growth in Medicare is projected to be slow during the next few years and then to rise to about 0.9 percent per year by the end of the 10-year period.

- For Medicaid, the average annual rate of excess cost growth implicit in CBO's baseline projections of the federal share of such spending is 1.4 percent, which is above the average rate from 1985 to 2014.[32] That rate

31. Medicare is typically scheduled to make certain payments under Parts C and D on the first of the month. If the day on which payments are due falls on a weekend or holiday, Medicare accelerates those payments to the last business day of the previous month. As a result, Medicare makes 11 or 13, rather than the normal 12, payments in certain years. For example, because October 1, 2023, falls on a Sunday, Medicare will issue payments due on that day on September 29, 2023, meaning that Medicare is scheduled to make 11 monthly payments in fiscal year 2024. CBO made adjustments to the Medicare spending amounts to account for such shifts in the timing of payments. In addition, in calculating the rate of excess cost growth, the effect of sequestration was removed because that cancellation of funding will not affect spending after 2025. In all subsequent discussion, the annual rates of excess cost growth for Medicare between 2017 and 2026 reflect those adjustments.

32. Medicaid spending amounts were adjusted to remove the effect of changes in the federal share of such spending. The number of Medicaid enrollees was adjusted to account for the projected faster growth in the number of beneficiaries known as partial duals than in the number of other types of Medicaid beneficiaries in the 10-year baseline. (Partial duals are Medicare beneficiaries who qualify to have Medicaid pay some of the expenses that they incur under Medicare, such as premiums; Medicaid does not, however, cover additional health care services they might receive, such as long-term services and supports.) That adjustment is necessary because the extended baseline reflects the expectation that the rate of growth in the number of partial duals will be similar to the growth rates of other types of Medicaid beneficiaries after 2026. In all subsequent discussion, the annual rates of excess cost growth for Medicaid between 2017 and 2026 reflect those adjustments.

is projected to gradually slow to about 0.7 percent by the end of the 10-year projection period. The higher rate of excess cost growth over the next few years can largely be explained by CBO's expectation that some states will expand coverage to include people with income of up to 138 percent of the FPL. That expansion would change the average cost per beneficiary because average spending on new enrollees who are made eligible by such an expansion (mostly adults who are not disabled) tends to be higher than average spending on adults who would have been eligible otherwise. (Although measures of excess cost growth reflect an attempt to adjust for policy changes and demographic changes, accounting for the effects of Medicaid expansions can be difficult.) CBO expects that the rate of excess cost growth will moderate later in the decade as the number of Medicaid enrollees who were made eligible by the ACA stabilizes.

- For private health insurance premiums, the average annual rate of excess cost growth implicit in the agency's baseline projections is about 2 percent by the end of the 10-year projection period. (That rate is similar to the average from 1988 to 2014.) CBO uses that average rate to project premiums, a key input in determining spending for the subsidies for insurance purchased through the marketplaces. In addition, the agency's baseline projections of such spending reflect the likelihood that the share of premiums covered by the subsidies will decline over time as a result of the additional indexing factor mentioned above.

### Excess Cost Growth After the Next Decade

Underlying CBO's projections of federal health care spending for 2027 and later years is the assumption that the rates of excess cost growth for Medicare, Medicaid, and private health insurance premiums, all of which are projected to be different in 2027, converge over the subsequent 20 years. In 2027, the rate of excess cost growth specific to each of those three categories equals the average of the specific rates projected for 2024 through 2026. For Medicare, that average rate is 0.9 percent; for Medicaid, it is 0.7 percent; and for private health insurance premiums, it is about 2 percent. After 2027, the excess cost growth rate of each of those three categories moves linearly, by the same fraction of a percentage point each year, from that category-specific rate to a rate of 1.0 percent in 2046 (see Figure 3-2).[33]

CBO projects that the excess cost growth rates for Medicare, Medicaid, and private health insurance premiums will all be the same in 30 years. Because the health care system is integrated to a significant degree, spending growth in all parts of the system will be affected by common factors, such as changes in physicians' practices and the development and diffusion of new medical technologies. CBO does not have a basis for projecting that the rates of excess cost growth for those three categories would differ in the long term. The agency used a value for excess cost growth three decades from now that is roughly three-quarters of the overall 30-year historical average of 1.4 percent. In determining that overall long-term growth rate, CBO considered each category's growth rate over the past 30 years, recently, and as projected at the end of the coming decade, as well as the flexibility within each category to restrain costs.

For Medicare, excess cost growth from 1985 to 2014 averaged 1.4 percent, but such growth was slower in recent years, averaging about 0.2 percent from 2008 to 2014. The reasons for that slowdown are not well understood.[34] Nevertheless, the slowdown has been substantial and has continued for several years. CBO has partially incorporated that slower growth into its projections for the next 10 years. In the second and third decades of the extended baseline, excess cost growth is projected to be between 0.9 percent and 1.0 percent, slower than the historical average. Although not a factor in the recent slowdown, one reason why that growth will probably remain below historical rates beyond the next 10 years is that the

33. The approach that CBO used to project long-term excess cost growth for Medicare, Medicaid, and private health insurance premiums is simpler this year than the method that the agency used last year. The change in method is described in Appendix B.

34. The rate of growth in Medicare spending per beneficiary for the elderly fell by nearly one-half from the early 2000s to the end of that decade. In studying that change, CBO could not identify the factors that caused most of the difference and found no evidence directly linking the declining rate of growth to the financial crisis and economic downturn. According to CBO's analysis, nearly one-fifth of that drop was attributable to the following three developments, which together slowed growth in spending for Medicare services: changes in the age and health status of beneficiaries, growth in the proportion of beneficiaries who enrolled only in Part A, and growth in the use of prescription drugs. About 6 percent of the drop stemmed from slower growth in average payment rates, and the remainder was not explained by any of the factors that CBO investigated. See Michael Levine and Melinda Buntin, *Why Has Growth in Spending for Fee-for-Service Medicare Slowed?* Working Paper 2013-06 (Congressional Budget Office, August 2013), www.cbo.gov/publication/44513.

program now includes a number of institutions, incentives, and mechanisms, such as the Center for Medicare & Medicaid Innovation and the Independent Payment Advisory Board, that could reduce spending growth in the program over time.

For Medicaid, the rate of excess cost growth is projected to be 0.7 percent in 2027 and to rise over the subsequent two decades. In 2046, the rate is projected to gradually return to its 1985–2014 average of 1.0 percent and to match the rates for Medicare and private health insurance premiums. That trajectory of excess cost growth reflects competing pressures that are expected to affect the Medicaid program—gradually boosting the rate between 2027 and 2046, though holding it below the projected rates for Medicare and private health insurance premiums. On the one hand, states are likely to face pressure—stemming from physicians' practice patterns, new technology, and other factors in the broader health care system—to increase payments to health care providers so that they continue to treat Medicaid beneficiaries. On the other hand, as health care costs rise, states are also expected to face pressure to slow the growth of spending for the program through actions—such as constraining payment rates for providers and managed care plans or limiting the optional services that Medicaid covers—that would reduce both state and federal expenditures.

For health insurance premiums in the private sector, the rate of excess cost growth is projected to decline from 2027 to 2046 and to be lower in 2046 than it has averaged historically. (By itself, that rate does not determine projections for subsidies for health insurance purchased through the marketplaces, but it is a key input into them.) Excess cost growth for private health insurance premiums is projected to decline in the long term because CBO expects that pressure to restrain health care costs will mount as those costs increase and become a greater and greater share of economic activity. When its share of GDP increases, health care spending absorbs a growing share of people's income, forcing them to consume fewer other goods and services, which in turn increases pressure to slow its growth. In the private sector, employers could intensify their efforts to reduce the costs of the insurance plans that they offered, and workers might pressure their employers to offer less expensive plans as health insurance premiums rose. Private insurers could also work to reduce that growth; they have more scope than the federal and state governments have to do so because the starting point of excess cost growth for private health insurance premiums is higher than excess cost growth for Medicare and Medicaid.

### How Spending Is Projected in the Long Term

To generate estimates of total spending for Medicare and Medicaid in the long term, CBO used the projections of program-specific excess cost growth and the number of beneficiaries. For Medicare, CBO estimates that the number of beneficiaries would grow with the size of the population age 65 or over and with the number of recipients of Social Security's Disability Insurance benefits.[35] Such growth is projected to average 1.7 percent per year between 2017 and 2046.

For Medicaid, what decisions states will make about Medicaid eligibility and covered benefits over even the next 10 years is quite uncertain, and that uncertainty grows with time; accordingly, CBO adopted a formulaic approach to generate the number of Medicaid beneficiaries each year after the next decade. That approach takes into account population growth, increasing earnings (which will reduce the number of eligible beneficiaries), and prospective actions by states.[36] (In particular, the projections incorporate the assumption that states would make changes over time in their Medicaid programs that offset roughly half of the effect of earnings growth on eligibility.) Overall, the number of enrollees is projected to remain roughly the same after 2026.

For CHIP, as well as for subsidies for health insurance purchased through the marketplaces and related spending, outlays are projected differently. Under current law, funding for CHIP expires after September 2017. Following statutory guidelines, CBO's baseline spending projections reflect the assumption that funding for the program will amount to $5.7 billion each year from 2018 through 2026.[37] For years after 2026, spending for the program, measured as a share of GDP, is assumed to remain at the 2026 level.

35. For more information about how CBO projects the number of beneficiaries of Social Security's Disability Insurance program, see Appendix A of this report as well as Congressional Budget Office, *CBO's Long-Term Model: An Overview* (June 2009), www.cbo.gov/publication/20807.

36. For additional discussion, see Congressional Budget Office, *The 2015 Long-Term Budget Outlook* (June 2015), Appendix A, www.cbo.gov/publication/50250.

37. Congressional Budget Office, "Baseline Projections for Selected Programs: Children's Health Insurance Program" (March 2016), www.cbo.gov/publication/51296.

CBO uses two approaches to project the costs of subsidies after the initial 10-year projection period: one for the first year of the long-term projection period and another for the end of that period. For the years in between, CBO uses a blend of those two approaches. For the first year of the projection period, subsidies are projected to grow at the average rate projected for the end of the 2017–2026 period; the agency makes adjustments to account for the increased probability that the additional indexing factor described above will be in effect. For the end of the projection period, the projections of subsidies are based on the rate of excess cost growth for private health insurance premiums and account for the effects of the additional indexing factor and of growth in real (inflation-adjusted) income. The additional indexing factor would limit the growth of the average subsidy, thereby moderating the growth of total spending on subsidies. Growth in real income would further moderate such spending: Although some people who had previously been eligible for Medicaid would become eligible for subsidies as their income increased, other people would move into higher income brackets and become eligible for less generous subsidies or become ineligible for subsidies altogether. (As a share of GDP, other spending related to those subsidies is assumed to remain at the 2026 level.)

## Long-Term Projections of Spending for the Major Health Care Programs

In CBO's extended baseline projections, which generally reflect current law, federal spending on the major health care programs increases significantly as a percentage of the economy over the next 30 years.

### Projected Spending

In 2016, federal spending for the major health care programs will amount to 5.5 percent of GDP, CBO estimates: Medicare spending (net of offsetting receipts) will equal 3.2 percent of GDP and federal spending on Medicaid and CHIP, combined with outlays for the subsidies for health insurance purchased through the marketplaces and related spending, will equal 2.3 percent. In CBO's extended baseline, federal spending for those programs rises to 8.9 percent of GDP in 2046, about 60 percent greater than it is estimated to be in 2016; net Medicare spending accounts for 5.7 percent of GDP, and spending on Medicaid and CHIP, combined with outlays for the marketplace subsidies and related spending, accounts for 3.1 percent (see Figure 3-3).[38] Growth of Medicare spending will account for about three-quarters of the increase in federal spending for the major health care programs as a share of GDP.

**Why Projected Spending Grows.** The aging of the population and the expectation that health care costs per beneficiary—for beneficiaries of all ages—will continue to grow faster than potential GDP per capita are the two key factors causing federal spending for the major health care programs to rise in CBO's projections. Those factors contribute to the rise in roughly equal proportions over the next 30 years (see Figure 1-5 on page 18). Without changes in the age distribution of the population and without any excess cost growth, CBO projects that such spending would stay roughly constant as a share of GDP over time.

In addition to adding to the number of Medicare beneficiaries, the aging of the population is projected to increase spending for the program because the beneficiaries will be older, on average, and older beneficiaries have higher average spending. Among the 65-or-older population, both the portion older than 75 and the portion older than 85 will increase over the next 30 years (see Figure 3-4). Medicare spending has traditionally been higher, on average, for older people within the 65-or-older group. For example, in calendar year 2012, spending in Parts A and B of the fee-for-service portion of Medicare averaged about $5,000 for 66-year-olds, $8,500 for 75-year-olds, and $12,500 for 85-year-olds.[39] CBO expects that pattern to persist.

**Distribution of Spending Among Types of Beneficiaries.** The factors that underlie the projected rise in total federal spending for the major health care programs also affect the amounts of spending that would subsidize care for different types of beneficiaries. Although federal support

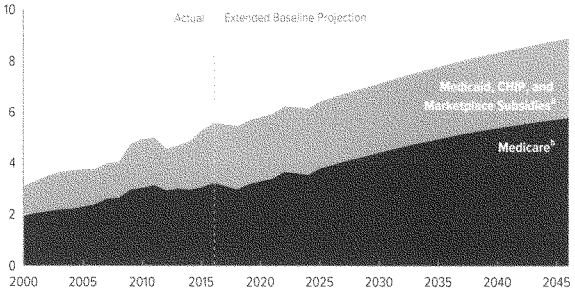
38. Gross Medicare spending is projected to increase from 3.8 percent of GDP in 2016 to 7.0 percent in 2046. In all of the projections, the outlays for subsidies for insurance purchased through the marketplaces and related spending are presented in combination with outlays for Medicaid and CHIP; they all constitute federal subsidies for health insurance for low- and moderate-income households.

39. Calculating average spending for 65-year-old beneficiaries is not helpful for this comparison because most beneficiaries are enrolled in Medicare for only part of the calendar year in which they turn 65. The amounts reported here include spending under Parts A and B of Medicare averaged among all beneficiaries of a given age in the traditional fee-for-service program who were enrolled in Part A, Part B, or both. The proportion of beneficiaries enrolled in both Parts A and B increases as beneficiaries age.

Figure 3-3.

**Federal Spending on the Major Health Care Programs, by Category**

Percentage of Gross Domestic Product




The projected rise in federal spending for the major health care programs results from the aging of the population and the expectation that health care costs per person will continue to grow more quickly than potential GDP per person.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Potential GDP is the maximum sustainable output of the economy.

CHIP = Children's Health Insurance Program; GDP = gross domestic product.

a. "Marketplace Subsidies" refers to outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act, as well as spending to subsidize insurance provided through the Basic Health Program and spending to stabilize premiums for insurance purchased by individuals and small employers.

b. Refers to net spending for Medicare, which accounts for offsetting receipts that are credited to the program. Those offsetting receipts are mostly premium payments made by beneficiaries to the government.

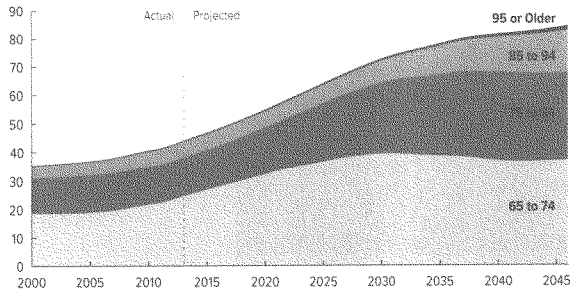
for health care for people under age 65 has expanded, only about one-fifth of federal spending for the major health care programs in 2026 would, under current law, finance care for able-bodied people under age 65, CBO projects; less than one-fifth would go toward care for people under age 65 who were blind or otherwise disabled, and about three-fifths would go toward care for people who were at least 65 years old. After 2026, according to CBO's estimates, the share of federal spending for the major health care programs that financed care for people age 65 or older would continue to rise because of the aging of the population.

**Uncertainty.** All long-term economic and demographic developments are uncertain, but federal spending on health care programs may be particularly so because both the number of enrollees in those programs and average spending for those enrollees are uncertain. Federal health care programs provide benefits to different socioeconomic groups, so changes in population demographics and economic growth could lead to changes in the number of people eligible for those programs. Uncertainty about those demographic and economic factors, combined with uncertainty about people's willingness to enroll in those programs, makes it difficult to project the number of enrollees.

Average spending for those enrollees is also very uncertain. Pharmaceuticals, medical procedures and technology, and the delivery of care all continue to evolve, and average spending for any of the federal health care programs could prove to be much higher or lower than CBO projects—especially as the projection period lengthens. Compounding the uncertainty stemming from those factors are the uncertain responses of beneficiaries and providers to changes in health insurance design, payment arrangements, and federal and state policies, as well as uncertainty about how broader changes in the economy may affect the health care sector. Chapter 7 shows how CBO's projections would differ if the growth of costs per beneficiary in Medicare and Medicaid proved significantly higher or lower than the agency projects in the extended baseline.

Figure 3-4.

**Number of People Age 65 or Older, by Age Group**




Medicare spending per person tends to be higher for older beneficiaries than for younger ones. Therefore, it is projected to rise as the average age of beneficiaries increases.

Source: Congressional Budget Office.

This figure shows actual data through calendar year 2013, the most recent year for which such data are available.

Also uncertain is the extent of support from federal spending that beneficiaries of federal health care programs will receive in the future. For example, scheduled updates to Medicare's payment rates will generally be smaller in the future than increases in the prices of inputs, which could cause changes in providers' behavior. If health care providers cannot increase their productivity over time—that is, if they cannot provide the same quantity and quality of treatments and procedures with fewer or less costly inputs—they would respond in other ways, such as by reducing the quality of care, reducing Medicare beneficiaries' access to care (which might reduce spending), or trying to increase revenues by other means (which might increase spending). Providers that are not able to adjust to the constraints imposed by the payment rate updates might merge with more profitable providers or go out of business. If access to providers under the traditional fee-for-service program declined, more enrollees might shift into Medicare Advantage plans, which are not bound by the updates to payment rates that apply to traditional Medicare. Medicare Advantage plans might be able to offer better access to care than the fee-for-service program if they increased the rates that they paid providers, but doing so would probably require enrollees in such plans to pay higher premiums. (Because federal payments to those plans are based largely on costs in the fee-for-service program, it is unclear whether such a shift—if it occurred—would substantially alter the trajectory of Medicare spending.)

### Projected Financing

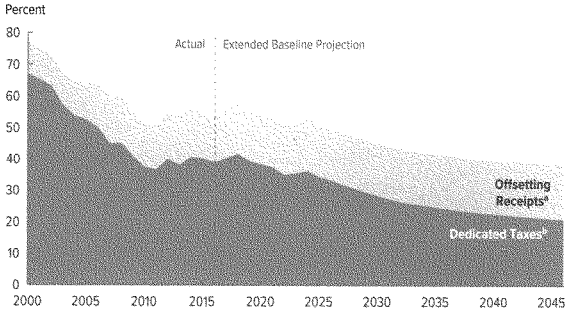
Spending on the federal government's major health care programs is financed in various ways. For Medicaid and CHIP, states and the federal government share in the financing. The federal share of spending on those programs is funded entirely from the government's general fund, as are the subsidies for insurance purchased through the marketplaces and related spending.

In contrast, Medicare is funded mostly by a mix of dedicated taxes, beneficiaries' premiums, and money from the government's general fund. The relative magnitudes of those sources of funding have changed significantly over time. As a result, the share of gross Medicare spending financed by dedicated taxes has declined from 67 percent in 2000 to an estimated 39 percent in 2016 (see Figure 3-5). The increase in the share of spending covered by sources other than dedicated taxes is largely the result of an increase in the share of benefits provided by the parts of the program that are financed mainly by premiums and money from the general fund—Part B and, since 2006, Part D.[40] Those shifts are expected to

40. In 2000, Part B accounted for 41 percent of gross Medicare spending; in 2016, Parts B and D will account for 57 percent of gross Medicare spending, CBO estimates. In 2016, the percentage of benefits covered by premiums and other offsetting receipts would be higher than shown here if the two-thirds of Part D premiums paid directly by beneficiaries to Part D plans and the resulting benefit payments were included; however, they are not recorded in the federal budget.

**Figure 3-5.**

**Medicare's Dedicated Taxes and Offsetting Receipts as a Percentage of Medicare Spending**




Since 2000, the share of Medicare spending funded by dedicated taxes and premiums has dropped. The share funded by the government's general fund has consequently grown.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period. The extended baseline incorporates the assumption that spending for Medicare continues as scheduled even if its trust funds are exhausted.

a. Mostly premium payments made by beneficiaries to the government.

b. Payroll taxes and a portion of the federal income taxes paid on Social Security benefits.

continue: In CBO's extended baseline, receipts from dedicated Medicare taxes provide only 21 percent of gross federal spending for Medicare in 2046, and beneficiaries' premiums and other offsetting receipts account for 18 percent, leaving 62 percent financed by other sources.

Benefits under Part A of Medicare are paid from the Hospital Insurance Trust Fund, which is credited with receipts largely from payroll taxes and from other revenues. A commonly used measure of the sustainability of Part A of Medicare is the timing of the projected exhaustion of the HI trust fund. According to CBO's baseline projections, under current law, the balance of the HI trust fund would increase from $196 billion at the end of fiscal year 2015 to $204 billion at the end of fiscal year 2019. Starting in 2020, CBO estimates, expenditures would outstrip income. The trust fund is projected to become exhausted in 2026.[41]

Once the HI trust fund was exhausted, total payments to health plans and providers for services covered under Part A of Medicare would be limited to the amount of revenues subsequently credited to that trust fund. If that occurred, beneficiaries' access to health care services covered under Part A almost certainly would be reduced as well. Despite that, CBO's projections reflect the statutory requirement that the agency incorporate into its baseline an assumption that full benefits will continue to be paid as scheduled under current law regardless of the status of a trust fund.[42]

41. Congressional Budget Office, "Baseline Projections for Selected Programs: Medicare" (March 2016), www.cbo.gov/publication/51302. In contrast, the Supplementary Medical Insurance Trust Fund, which pays for benefits covered under Parts B and D of Medicare, cannot be exhausted because it is financed mainly through premiums and money from the general fund. The amounts of contributions from those sources are set to cover the costs of those benefits.

42. See sec. 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985, Public Law 99-177 (codified at 2 U.S.C. §907(b)(1) (2012)).

CHAPTER

4

# The Long-Term Outlook for Other Federal Noninterest Spending

Although Social Security, the major health care programs, and net interest account for most federal spending, more than 40 percent of the federal government's spending in 2016 will go toward other programs and activities. That spending—referred to in this report as other federal noninterest spending—includes outlays for all discretionary programs, which are funded through the annual appropriation process, and outlays for many mandatory programs.[1]

The Congressional Budget Office projects that, under the broad assumptions used for this analysis, other federal noninterest spending would drop from a total of 9.2 percent of gross domestic product (GDP) in 2016 to 7.7 percent in 2026 and then to 7.3 percent in 2046:

- Discretionary spending, which is estimated to equal 6.5 percent of GDP in 2016, would fall to 5.2 percent by 2026. For its extended baseline, CBO assumed that discretionary spending as a percentage of GDP would remain roughly constant after 2026 (see Figure 4-1).
- Mandatory spending other than spending for Social Security and the major health care programs would decrease from 2.8 percent of GDP this year to 2.5 percent in 2026. (That spending includes the refundable portions of tax credits, such as the earned income tax credit, for which payments are made to taxpayers if the credit exceeds their tax liability; those payments are recorded in the budget as outlays.) For its extended baseline, CBO assumed that such spending—other than the portion related to refundable tax credits—would continue to fall in relation to GDP at roughly the same rate that it fell over the 2021–2026 period. All told, other mandatory spending is projected to equal 2.1 percent of GDP in 2046.

1. For a description of the activities included in various categories of federal spending, see Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), Box 3-1, www.cbo.gov/publication/51129.

## Other Federal Noninterest Spending Over the Past 50 Years

During the past 50 years, federal spending for everything other than Social Security, the major health care programs, and net interest has averaged 12 percent of GDP. Such spending declined from its peak of 15 percent of GDP in 1968 to 9 percent in 2015. Measured as shares of GDP, both discretionary spending and other mandatory spending rose in response to the 2007–2009 recession but declined in recent years.

### Discretionary Spending

Since the 1970s, the share of spending that occurs through the annual appropriation process has diminished. Between 1966 and 2015, discretionary spending declined from 67 percent of total federal spending to 32 percent. Measured as a share of the economy, that spending decreased from 11.5 percent of GDP to 6.6 percent.

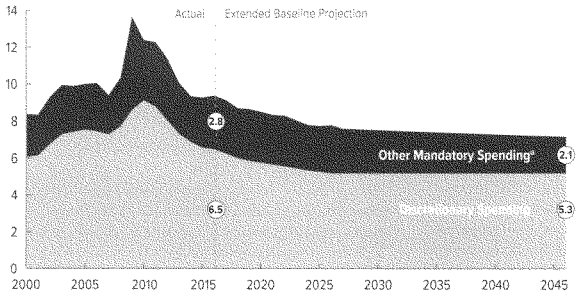
**Defense Discretionary Spending.** Spending for national defense, most of which is administered by the Department of Defense (DoD), accounts for about half of discretionary spending. In 2016, DoD's spending falls mostly into three broad categories:

- Operation and maintenance, which supports the day-to-day activities of the military, the training of military units, the majority of costs for the military's health care system, and compensation for most of DoD's civilian employees;
- Military personnel, which covers compensation for uniformed service members, including pay, allowances for housing and food, and related activities, such as moving service members and their families to new duty stations; and
- Acquisition, which includes the procurement, research, development, testing, and evaluation of weapon systems and other major pieces of equipment.

**Figure 4-1.**

## Other Federal Noninterest Spending

Percentage of Gross Domestic Product




Measured as a percentage of economic output, other federal noninterest spending in CBO's extended baseline falls by a fifth between 2016 and 2046. The majority of that drop stems from a projected decline in discretionary spending over the next decade.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

a. Other mandatory spending is all mandatory spending other than that for Social Security and the major health care programs. It includes the refundable portions of the earned income and child tax credits and of the American Opportunity Tax Credit.

Fifty years ago, in 1966, defense discretionary spending equaled 7.5 percent of GDP; it peaked at 9.1 percent two years later as a result of military operations in Vietnam. In the late 1970s, such spending dropped below 5.0 percent of GDP before rising again during the defense buildup from 1982 to 1986, when it averaged 5.9 percent (see Figure 4-2). After the end of the Cold War, outlays for defense fell again in relation to GDP, reaching a low of 2.9 percent at the turn of the century. Largely as a result of military operations in Iraq and Afghanistan, such outlays climbed again in the 2000s, peaking at 4.7 percent in 2010. Since then, defense spending has declined in relation to the size of the economy; in 2015, it amounted to 3.3 percent of GDP.

**Nondefense Discretionary Spending.** The rest of discretionary outlays are for nondefense purposes that span a wide array of federal investment and other activities, including the following:

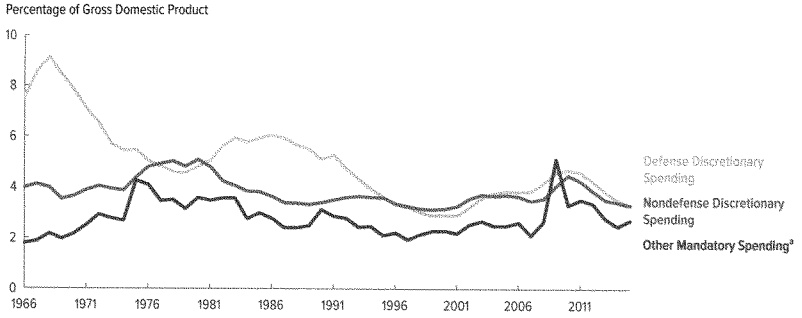
- Education (excluding student loans), training, employment, and social services;
- Transportation, including highway and transit programs as well as airport security;
- Housing assistance;
- Veterans' health care;
- Health-related research and public health programs;
- Administration of justice, including federal law enforcement, criminal justice, and correctional activities;
- International affairs, including international development, humanitarian assistance, peacekeeping, nuclear nonproliferation, and the operation of U.S. embassies and consulates; and
- Activities and programs in other areas, including natural resources and the environment, science, agriculture, and community and regional development.

Nondefense discretionary spending was close to 4 percent of GDP from 1966 through the mid-1970s and averaged almost 5 percent of GDP between 1975 and 1981. From 1984 to 2008, such spending remained between 3 percent and 4 percent of GDP. More recently, funding from the American Recovery and Reinvestment Act of 2009, along with other funding associated with the federal government's response to the 2007–2009 recession,

Figure 4-2.

**Other Federal Noninterest Spending, by Category, 1966 to 2015**

In total, other federal noninterest spending is now about a third lower, measured as a percentage of gross domestic product, than it was in 1966. Most of that reduction has taken place in defense discretionary spending, which is less than half its former size.




Source: Congressional Budget Office.

a. Other mandatory spending is all mandatory spending other than that for Social Security and the major health care programs. It includes the refundable portions of the earned income and child tax credits and of the American Opportunity Tax Credit.

helped push nondefense discretionary spending above 4.0 percent of GDP from 2009 through 2011. Such spending dropped below 4.0 percent of GDP in 2012 and has continued to decline since then, reaching 3.3 percent of GDP in 2015.

### Other Mandatory Spending

Mandatory spending other than that for Social Security and the major health care programs covers the following programs and activities, among others:

- Civilian and military retirement (including benefits paid to retired federal civilian and military employees) and some benefits paid to retired railroad workers;
- Earned income, child, and other refundable tax credits, for which payments are made to taxpayers if the credit exceeds their tax liability;
- Certain veterans' benefits, some of which are available only to veterans (such as housing, readjustment, disability compensation, and life insurance), and others of which are sometimes available to dependents or survivors as well (such as educational assistance, pensions, dependency and indemnity compensation, and burial benefits);
- Food and nutrition programs, including the Supplemental Nutrition Assistance Program, and child nutrition programs;
- Unemployment compensation;
- Supplemental Security Income; and
- Family support and foster care, including grants to states that help fund welfare programs, Temporary Assistance for Needy Families, foster care, and child support enforcement.

Other mandatory spending is net of various offsetting receipts, which are payments collected by government agencies from other government accounts or from the public in businesslike or market-oriented transactions that are recorded in the budget as negative outlays (that is, as credits against mandatory spending). A significant share of offsetting receipts is collected under the Medicare program (mostly in the form of premiums paid by beneficiaries); those receipts are combined with Medicare outlays in this report (see Chapter 3 for more information). Other sources of offsetting receipts include contributions that government agencies make to federal retirement programs, the proceeds from leases to drill for oil and

Table 4-1.

**Other Federal Noninterest Spending Under CBO's Baseline**

Percentage of Gross Domestic Product

| | 2016 | 2026 |
|---|---|---|
| Discretionary Spending | | |
| Defense | 3.2 | 2.6 |
| Nondefense | 3.3 | 2.6 |
| **Total** | **6.5** | **5.2** |
| Other Mandatory Spending | | |
| Civilian and military retirement | 0.9 | 0.8 |
| Nutrition programs | 0.5 | 0.4 |
| Refundable tax credits[a] | 0.5 | 0.4 |
| Veterans' benefits | 0.6 | 0.5 |
| Unemployment compensation | 0.2 | 0.2 |
| Supplemental Security Income | 0.3 | 0.3 |
| Offsetting receipts | -0.7 | -0.5 |
| Other | 0.5 | 0.4 |
| **Total** | **2.8** | **2.5** |
| **Total, Other Federal Noninterest Spending** | **9.2** | **7.7** |

Source: Congressional Budget Office.

Other federal noninterest spending is all spending other than that for Social Security, the major health care programs, and net interest.

a. The earned income and child tax credits and the American Opportunity Tax Credit.

natural gas on the Outer Continental Shelf, and payments made to the Treasury by Fannie Mae and Freddie Mac.

Other mandatory spending has generally remained between 2 percent and 4 percent of GDP since the mid-1960s. However, as a result of the government's response to the recession that began in December 2007, such spending spiked to over 5 percent of GDP in 2009. As the economy improved and federal spending related to the recession waned, other mandatory spending measured as a share of the economy fell sharply. In 2015, that spending was 2.7 percent of GDP.

## Long-Term Projections of Other Federal Noninterest Spending

Combined, discretionary spending and other mandatory spending are projected to be a smaller share of GDP in the coming three decades than such spending has been in the past. Under CBO's extended baseline, federal spending for all programs and activities other than Social Security, the major health care programs, and net interest is estimated to be 9.2 percent of GDP in 2016 and is projected to total 7.7 percent in 2026 and 7.3 percent in 2046. At those levels, other federal noninterest spending as a share of GDP would be lower than it has been since the 1930s.

### Discretionary Spending

Projections of discretionary spending for 2016 through 2026 come from CBO's most recent 10-year baseline budget projections, which were published in March.[2] Through 2021, most discretionary appropriations are constrained by the caps put in place by the Budget Control Act of 2011 (as amended). For 2022 through 2026, CBO's baseline projections incorporate the assumption that those appropriations will equal the 2021 amount, with increases for inflation. Funding for certain purposes, such as war-related activities, is not constrained by the Budget Control Act's caps. In CBO's projections, such funding is assumed to increase each year through 2026 at the rate of inflation, starting from the amounts provided in 2016. Under those assumptions, outlays from discretionary appropriations are projected to decline from 6.5 percent of GDP this year—already well below the 50-year average of 8.7 percent—to 5.2 percent of GDP in 2026 (see Table 4-1).[3] That year, about half of the outlays would be for national defense and half for nondefense activities. At those levels, total discretionary spending and its defense and nondefense components would account for smaller shares of GDP than they have since at least 1962 (the first year for which comparable data are available). In the extended baseline, such spending measured as a share of GDP remains roughly constant over the subsequent two decades.

Like its baseline, CBO's extended baseline is meant to be a benchmark for measuring the budgetary effects of legislation, so it, too, reflects the assumption that current laws generally remain unchanged. However, after 2021—when the caps established by the Budget Control Act are due to expire—total discretionary spending will not be constrained by current laws but instead will be determined by lawmakers' future actions. With no basis for predicting those actions, CBO based its long-term projections of discretionary spending on a combination

2. See Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384.

3. Ibid.

of the baseline projections through 2026 and historical experience.

CBO assumed that after 2026 discretionary spending would remain constant as a percentage of GDP before the agency accounted for the effect on the economy of the fiscal policy projected under the extended baseline. CBO estimates that fiscal policy under the extended baseline would dampen economic growth, so its projection of discretionary spending does not grow at precisely the same rate as GDP. (For further discussion, see Chapter 6.)

CBO incorporated the assumption that discretionary spending as a share of GDP would remain at about the 2026 level, 5.2 percent of GDP, through 2046 in its extended baseline after considering the two alternatives—further decreases or future increases relative to GDP. In CBO's judgment, a projection that showed discretionary spending continuing to decline in relation to GDP beyond 2026 would not be the most useful benchmark for analyzing future fiscal policy because the historical evidence suggests that such a decline is very unlikely to continue. Over the past half century or so for which comparable data are available, discretionary spending has always been a larger share of economic output than it is projected to be in 2026. Throughout that period, nondefense discretionary spending has been greater than 3.0 percent of GDP and has not shown a sustained trend, in either direction, in relation to the size of the economy. Defense spending has accounted for at least 2.9 percent of GDP throughout the past five decades and has been between that amount and 4.7 percent of GDP over the past 20 years. The other alternative, projecting discretionary spending to increase in relation to GDP after 2026, would require CBO to select a specific rate at which discretionary spending would grow, and the agency has no clear basis for choosing such a rate.

### Other Mandatory Spending

CBO's baseline projections reflect the assumption that mandatory programs will operate as they do under current law, which includes the automatic spending cuts put in place by the Budget Control Act and extended through 2025. In CBO's most recent baseline projections, total mandatory spending excluding that for Social Security and the major health care programs is estimated to amount to 2.8 percent of GDP this year and next.[4] Such spending then declines in subsequent years, falling to 2.5 percent of GDP by 2026.[5] In the extended baseline, such spending measured as a share of GDP continues to fall over the subsequent two decades—declining to 2.1 percent of GDP in 2046. Because some benefits would decline in relation to average income, the benefits available to people many years in the future would be lower, relative to income, than what they are today.

Most of the projected decline through 2026 in other mandatory spending as a share of GDP occurs for two reasons. First, the number of beneficiaries for some of the programs is expected to decline in relation to the size of the population as the economy expands. Second, the average payment per beneficiary measured relative to average income is projected to decrease. For example, income thresholds for eligibility for some large income support programs, such as Supplemental Security Income and the Supplemental Nutrition Assistance Program, generally rise with prices, whereas income usually rises more rapidly than prices—especially when the economy grows stronger. As a result of that strengthening of the economy, the number of beneficiaries in some programs is expected to rise more slowly than the population or even to decrease over the next 10 years. Furthermore, average payments under some large programs are indexed to inflation and therefore tend to grow more slowly than income.

A small part of the decline between 2016 and 2026 stems from a projected reduction in spending relative to GDP for the earned income tax credit, the child tax credit, and the American Opportunity Tax Credit. Outlays for the refundable portions of those credits are projected to decrease from 0.5 percent of GDP in 2016 to 0.4 percent in 2026. The key parameters of those tax credits are either not indexed or indexed only to inflation. Thus, as real income grows faster than inflation, the amounts of various credits that people qualify for decrease in relation to GDP.

For the years after 2026, mandatory spending excluding that for Social Security, the major health care programs, and refundable tax credits was not projected in detail because of the number of programs involved and the

4. In 2016, outlays for other mandatory spending will be boosted by the shift in timing of some payments from fiscal year 2017 to 2016 (because October 1, 2016, falls on a weekend). If not for that shift, CBO estimates, such outlays would equal 2.7 percent of GDP in 2016.

5. See Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), Figure 4, www.cbo.gov/publication/51384.

variety of factors that influence spending on them. Instead, CBO used an approximate method to project spending for those programs as a group; except for the tax credits, such spending was assumed to decline in relation to GDP (excluding any effect that fiscal policy may have on the economy) after 2026 at the same rate at which it is projected to fall between 2021 and 2026 (excluding the decline in spending in the Supplemental Nutrition Assistance Program).[6] CBO projected outlays for the refundable portions of the earned income tax credit, the child tax credit, and the American Opportunity Tax Credit separately, using the methods for its long-term revenue projections (see Chapter 5). CBO estimates that fiscal policy under current law would dampen GDP growth after 2026, so projected spending for those programs as a share of GDP is slightly higher than it would be if fiscal policy did not affect the economy.

6. CBO projects that spending for the Supplemental Nutrition Assistance Program (SNAP) will decline from 0.4 percent of GDP in 2016 to less than 0.3 percent of GDP in 2026 as the economy strengthens. Because CBO does not anticipate that significant decline relative to GDP in outlays for SNAP to continue beyond 2026, such outlays were excluded from the calculation of the rate of decline for the portion of other mandatory spending that excludes the refundable portions of tax credits. In 2027 and later years, CBO projects, outlays for SNAP as a share of GDP will decline at the same rate as other mandatory spending (excluding the refundable tax credits).

CHAPTER

# 5

# The Long-Term Outlook for Federal Revenues

Federal revenues come from various sources, including individual and corporate income taxes, payroll (social insurance) taxes, excise taxes, estate and gift taxes, and other taxes and fees. Currently, proceeds from individual income taxes and payroll taxes account for about 80 percent of the federal government's revenues.

For this report, the Congressional Budget Office projected the future path of revenues under an extended baseline. That approach follows the agency's 10-year baseline budget projections through 2026 and then extends most of the concepts underlying those baseline projections for the rest of the long-term projection period. The revenues projected for the 10-year period are the same as those in CBO's March 2016 baseline.[1] The extended baseline incorporates the assumption that the rules governing all tax sources will evolve as specified under current law (including the scheduled expiration of temporary provisions lawmakers have routinely extended before).[2]

CBO's projections are not intended to predict budgetary outcomes; instead, they represent CBO's assessment of future revenues if current laws remained generally unchanged. (Chapter 6 discusses the consequences of fiscal policies other than those in the extended baseline.) Such projections are particularly difficult because revenues are very sensitive to economic developments, including the impact of rising federal debt on the economy.

Under the extended baseline, federal revenues relative to the size of the economy fluctuate in a narrow band, ranging from 18.0 percent to 18.2 percent of gross domestic product (GDP) from 2016 through 2026. That relative stability over the next 10 years mainly reflects offsetting movements in four sources of revenues:

- Individual income tax receipts are projected to increase by 0.8 percentage points relative to GDP, mainly because of real bracket creep—the pushing of a growing share of income into higher tax brackets as a result of growth in real (inflation-adjusted) income—as well as the interaction of the tax system with inflation, an expected continued increase in the share of wages and salaries earned by higher-income taxpayers, and rising distributions from tax-deferred retirement accounts.
- Remittances by the Federal Reserve System to the Treasury are projected to decline by 0.4 percentage points as a share of GDP to more typical amounts relative to the size of the economy.
- Corporate income tax receipts are projected to decline relative to GDP by 0.2 percentage points, largely because of an expected drop in domestic economic profits relative to the size of the economy.
- Payroll tax receipts are also projected to decline by 0.2 percentage points relative to GDP over the next decade, primarily because of the expected continued increase in the share of wages and salaries earned by higher-income taxpayers.

After 2026, in the extended baseline, revenues rise faster than GDP, largely for two reasons: The effect of real bracket creep would continue, and a new excise tax on certain employment-based health insurance plans would generate a growing amount of revenues relative to the size of the economy. As a result, federal revenues are projected to reach 19.4 percent of GDP by 2046 (see Figure 5-1). By comparison, revenues over the past 50 years have averaged 17.4 percent of GDP.

Without significant changes in tax law, the tax system's effects in 2046 would differ markedly from what they are

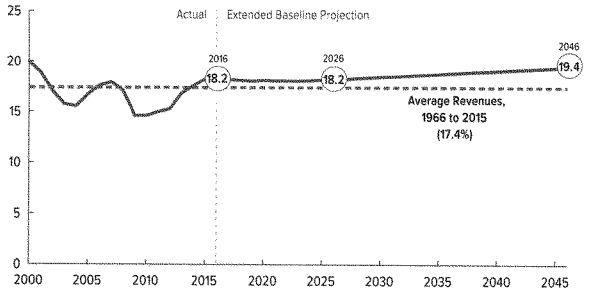
1. For details of CBO's March baseline, see Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384.

2. The sole exception to the current-law assumption during the baseline period applies to expiring excise taxes dedicated to trust funds. The Balanced Budget and Emergency Deficit Control Act of 1985 requires CBO's baseline to reflect the assumption that those taxes would be extended at their current rates. That law does not stipulate that the baseline include the extension of other expiring tax provisions, even if lawmakers have routinely extended them before.

**Figure 5-1.**

**Total Revenues**

Percentage of Gross Domestic Product




Under CBO's extended baseline, revenues rise slowly after 2026 mainly because of real bracket creep and an excise tax on employment-based health insurance that is scheduled to take effect in 2020.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Real bracket creep refers to the process in which, as real (inflation-adjusted) income rises, an ever-larger proportion becomes subject to higher tax rates.

today. A larger share of each additional dollar of income that households earned would go to taxes, and households throughout the income distribution would pay more of their total income in taxes than households in similar places in that distribution pay today.

## Revenues Over the Past 50 Years

Revenues have varied significantly over the past 50 years because of changes in tax laws and interactions between tax law and economic conditions. Total federal revenues have been as high as 20.0 percent of GDP (in 2000) and as low as 14.6 percent (in 2009 and 2010), with no evident trend (see Figure 5-2). The composition of total revenues during that period has varied as well. Individual income taxes, which account for about half of all revenues now, have ranged from slightly less than 10 percent of GDP (in 2000) to slightly more than 6 percent (in 2010). Payroll taxes, which generate about one-third of total revenues now, have varied from well under 4 percent of GDP to more than 6 percent during the past 50 years. (Those taxes are credited mainly to the Social Security and Medicare Hospital Insurance trust funds.) Corporate income taxes have fluctuated between about 1 percent and 4 percent of GDP since the mid-1960s, and combined revenues from other sources have fluctuated between 1 percent and 3 percent of GDP over that same period.

Some of that variation is the result of legislative changes: In the past 50 years, at least a dozen changes in law have raised or lowered annual revenues by at least 0.5 percent of GDP. But most of the variation in the amounts of revenue generated by different taxes has stemmed from changes in economic conditions and from how those changes interact with the tax code. For example, without legislated tax reductions, real bracket creep tends to cause receipts from individual income taxes to grow relative to GDP, because as taxpayers' income rises faster than inflation a larger share of income is taxed at higher rates. Also, because some parameters of the tax system do not increase with inflation, rising prices alone subject a greater share of income to higher effective tax rates.[3]

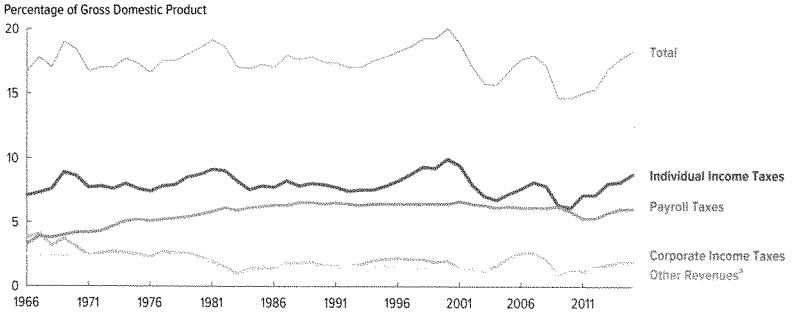
Cyclical developments in the economy also affect revenues. During economic downturns, for example, taxable corporate profits generally fall faster than the nation's output, shrinking corporate tax revenues relative to GDP; losses in households' income also tend to push a greater

3. The parameters of the tax system include the amounts that define the various tax brackets; the amounts of the personal exemption, standard deduction, and credits; and tax rates. Although many of the parameters—including the personal exemption, standard deduction, and tax brackets—are indexed for inflation, some, such as the amount of the maximum child tax credit, are not. The effect of price increases on tax receipts was much more significant before 1984, when none of the parameters of the individual income tax were indexed for inflation.

Figure 5-2.

**Revenues, by Source, 1966 to 2015**

Over the past 50 years, movement in individual income tax receipts has accounted for most of the variation in total revenues.




Source: Congressional Budget Office.

a. Consists of excise taxes, remittances to the Treasury from the Federal Reserve System, customs duties, estate and gift taxes, and miscellaneous fees and fines.

share of total income into lower tax brackets, reducing individual income tax revenues relative to GDP. Thus, total tax revenues as a share of GDP automatically decline when the economy is weak and rise when the economy is strong.

By contrast, revenues derived from excise taxes have declined over time relative to GDP because many excise taxes are levied on the unit quantity of a good purchased (such as a gallon of gasoline) as opposed to a percentage of the price paid. Because those levies are not indexed for inflation, the revenues they generate have declined as a share of GDP as prices have risen.

## Revenue Projections Under CBO's Extended Baseline

During the next decade, under current law, some new provisions of tax law will go into effect and certain provisions will expire. Reflecting those scheduled changes, the extended baseline incorporates the following assumptions:

- A new tax on certain employment-based health insurance plans with high premiums, currently scheduled to go into effect in 2020, will be implemented without further modification.
- Certain tax provisions scheduled to expire over the next decade will do so, even if lawmakers have routinely extended them before. For example, the rules that allow businesses with large amounts of investment to accelerate their deductions for those investments are assumed to phase out, as scheduled, by the end of December 2019.

If current laws remained in place, tax revenues would rise from 18.2 percent of GDP in both 2016 and 2026 to 19.4 percent in 2046, CBO estimates.[4] Increases in receipts from individual income taxes more than account

4. According to CBO and the staff of the Joint Committee on Taxation, extending expiring tax provisions, including the partial expensing of equipment property at a 50 percent rate, and repealing certain postponed taxes related to health insurance would reduce revenues by 0.3 percent of GDP in 2026. For further information, see Table 1-5 of Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), www.cbo.gov/publication/51129.

Table 5-1.

**Sources of Growth in Total Revenues Between 2016 and 2046 Under CBO's Extended Baseline**

| Source of Growth | Percentage of GDP |
|---|---|
| Structural Features of the Individual Income Tax (Including real bracket creep)[a] | 1.1 |
| New and Expiring Tax Provisions | 0.8 |
| Aging and the Taxation of Retirement Income | 0.3 |
| Changes in the Distribution of Income | 0.1 |
| Other Factors | -1.0 |
| **Growth in Total Revenues Between 2016 and 2046** | **1.2** |

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

GDP = gross domestic product.

a. Real bracket creep refers to the process in which, as real (inflation-adjusted) income rises, an ever-larger proportion becomes subject to higher tax rates.

for the projected rise of 1.2 percentage points in total revenues as a percentage of GDP over the next 30 years; receipts from all other sources of revenues, taken together, are projected to decline slightly as a share of GDP.

The projected increase in total revenues reflects several factors: structural features of the income tax system, new and expiring tax provisions, demographic trends, changes in the distribution of income, and other factors (see Table 5-1).

### Structural Features of the Individual Income Tax System

Real bracket creep is the most important structural feature of the tax system contributing to growth in revenues over time. It has two kinds of effects. First, rising real income subjects an ever-larger proportion of income to higher tax rates, and second, it further increases taxes by reducing taxpayers' eligibility for various credits, such as the earned income tax credit and the child tax credit.

Also, some provisions of the tax code are not indexed for inflation, so cumulative inflation boosts receipts relative to GDP. For example, the additional tax on the investment income of individuals that went into effect in 2013 is not indexed for inflation. The income thresholds for that tax ($200,000 for single individuals and $250,000 for married couples) do not increase as prices rise, so the tax will affect an increasing share of investment income over time, boosting revenues by a small but growing share of GDP.[5] If current laws remained in place, faster growth in people's income than in parameters of the tax code would push up income tax revenues as a portion of GDP by 1.1 percentage points between 2016 and 2046, CBO estimates.

### New and Expiring Tax Provisions

Under the extended baseline, CBO assumes that tax provisions will take effect or expire as specified under current law. Two new tax provisions will begin to raise significant amounts of revenue over the next several years. Certain other provisions are scheduled to expire, also boosting revenues.

The most significant new provision is an excise tax on employment-based health insurance whose value exceeds certain thresholds. The implementation of that new tax, originally scheduled for 2018, was delayed until 2020 by the Consolidated Appropriations Act, 2016 (Public Law 114-113). That tax is expected to increase revenues in two ways:

- First, in those cases in which the tax applied, it would generate additional excise tax revenues.

5. An additional Medicare tax of 0.9 percent, paid entirely by the employee, applies to annual earnings (wages and salaries) exceeding $200,000 for single individuals and $250,000 for married couples. Because those thresholds are not indexed for inflation, the tax will apply to an increasing share of earnings over time and thereby raise payroll tax revenues as a share of GDP by larger amounts over time. However, a decline in the share of earnings subject to the Social Security tax will more than offset that effect, CBO projects, because a further slight increase in earnings inequality will cause more earnings to be above the taxable maximum amount for Social Security.

- Second, many individuals and employers will probably shift to lower-cost health insurance plans to either reduce the excise tax paid or avoid it altogether. As a result, total payments of health insurance premiums for those individuals—and the associated tax-exempt contributions from their employers—will be smaller than they would have been without the tax. However, CBO expects that total compensation paid by employers (including wages and salaries, contributions to health insurance premiums, pensions, and other fringe benefits) will not be affected over the long term.[6] Thus, smaller expenditures for health insurance will mean higher taxable wages and salaries for employees and, as a result, higher payments of income and payroll taxes.[7]

Thus, regardless of whether individuals and employers decide to pay the excise tax or to avoid it by switching to lower-cost plans, total tax revenues would ultimately rise compared with what they would have been without the tax. Although the thresholds for the tax on high-premium health insurance plans will be adjusted for changes in overall consumer prices, health care costs will grow faster than prices over the long term, CBO projects, causing the tax to affect more people over time. Under the extended baseline, the excise tax is projected to increase total revenues by 0.6 percent of GDP in 2046.

The other new provision that will increase revenues relative to GDP after 2016 penalizes certain employers that do not offer their employees health insurance coverage meeting certain criteria. That provision was implemented in 2015 and will increase revenues starting in 2017, CBO projects.

In addition, several dozen tax provisions are slated to expire over the next decade. The most significant of those is the option for certain businesses to immediately deduct from their taxable income 50 percent of the cost of new investments in equipment. That provision is scheduled to be phased out by the end of 2019.

The scheduled implementation of new tax provisions and the expiration of certain existing tax provisions, taken together, would raise receipts by 0.8 percent of GDP between 2016 and 2046, CBO projects.

### Aging and the Taxation of Retirement Income

During the next few decades, members of the baby-boom generation (people born between 1946 and 1964) will continue to retire. They will withdraw money from retirement accounts—such as 401(k) plans and individual retirement accounts—and receive pension benefits, boosting income tax revenues as a share of GDP. Some or all of the amounts withdrawn will be taxable, depending on the specific characteristics of the retirement plans. Likewise, compensation deferred under employer-sponsored defined benefit plans is taxed when benefits are paid.[8] Thus, the Treasury will receive significant tax revenues that have been deferred for years. Payment of those deferred taxes will boost revenues as a share of GDP by about 0.3 percentage points, CBO projects, between 2016 and 2046. That upward trend is expected to end around 2035, when almost all baby boomers will have reached retirement.

### Changes in the Distribution of Income

Revenues from individual income and payroll taxes also depend on the distribution of income. CBO's projections reflect an expectation that earnings will grow faster for higher-income people than for others during the next decade—as they have over the past several decades—and that the income of all taxpayers will grow at similar rates thereafter. That differential growth will cause a larger share of income to be subject to higher tax rates. For example, the share of wages earned by the top one-fifth of workers is projected to increase by about 4 percentage points, from 57 percent to 61 percent, between 2015 and 2026. That faster growth in earnings for higher-income people would elevate estimated individual income tax revenues relative to GDP by about 0.3 percentage points over the next 10 years.

Partially offsetting that increase in individual income taxes would be a corresponding decrease in payroll tax receipts. Those receipts would decline because greater earnings inequality would cause more earnings to be above the taxable maximum amount for Social Security

6. In the past, rising premiums have been an important cause of slow wage growth. See Paul Ginsburg, *Alternative Health Spending Scenarios: Implications for Employers and Working Households* (Brookings Institution, April 2014), http://tinyurl.com/ksh9p47.

7. Even if the excise tax caused employers to shift to lower-cost health insurance plans without increasing employees' wages by a corresponding amount, other taxes (such as those on corporate profits) would tend to rise. The resulting revenues would be similar to the amounts projected in CBO's extended baseline.

8. A defined benefit pension plan is an employment-based plan that promises employees a certain regularly recurring benefit upon retirement. Typically, the benefit is based on a formula that takes into account an employee's length of service and salary.

taxes. The share of covered earnings above the taxable maximum amount is projected to rise to more than 20 percent in 2026, 4 percentage points more than the share in 2015. That effect would reduce payroll tax revenues relative to GDP by about 0.2 percentage points over the next decade, CBO projects. Altogether, if current laws remained in place, faster growth in earnings of higher-income people would increase tax revenues as a portion of GDP by 0.1 percentage point between 2016 and 2026, CBO estimates, and by no additional amount after 2026.

### Other Factors

Under the extended baseline, factors besides those already discussed would cause revenues to decline by a combined 1.0 percent of GDP between 2016 and 2046. More than four-fifths of that decline would occur by 2026. In particular, remittances to the Treasury from the Federal Reserve—which have been very large since 2010 because the central bank's portfolio has grown and changed in composition—are projected to decline to more typical levels and remain constant as a share of GDP after 2026. Corporate income taxes are also expected to decline over the next decade because of a projected decrease in domestic economic profits relative to GDP and an expected increase in the use of certain strategies that some corporations employ to reduce their tax liabilities. (In CBO's extended baseline, corporate income taxes remain constant as a share of GDP after 2026.)

Excluding the excise tax on high-premium health insurance plans, CBO projects that excise taxes would decline as a share of GDP over time. Because many excise taxes are assessed as a fixed dollar amount per unit quantity of a good purchased (not as a percentage of the price paid), receipts from excise taxes as a share of GDP tend to fall as overall prices rise over time. Moreover, payroll taxes for unemployment insurance are expected to decline to more typical levels over the next few years, further reducing receipts as a share of GDP.

## Long-Term Implications for Tax Rates and the Tax Burden

Even if legislators enacted no future changes in tax law, the effects of the tax system that would be in place in the future would differ significantly from the effects of today's tax system. Increases in real income over time would push more income into higher tax brackets in the individual income tax system, raising people's effective marginal tax rates and average tax rates. (The effective marginal tax rate is the percentage of an additional dollar of income from labor or capital that is paid in federal taxes. The average tax rate is total taxes paid divided by total income.) Moreover, fewer taxpayers would qualify for certain tax credits because rising real income would push taxpayers above the income limits for eligibility. Inflation would also raise tax rates, but to a much lesser extent, because most of the tax code's key parameters are indexed for inflation. Slightly more taxpayers would become subject to the alternative minimum tax (AMT) over time, although the American Taxpayer Relief Act of 2012 greatly limited the share of taxpayers who would pay that tax.[9] Thus, in the long run, people throughout the income distribution would pay a larger share of their income in taxes than people at the same points in the distribution pay today, and many taxpayers would face diminished incentives to work and save.

### Marginal Federal Tax Rates on Income From Labor and Capital

Under CBO's extended baseline, marginal tax rates on income from labor and capital would rise over time. The effective marginal tax rate on income from labor would increase from 30 percent in calendar year 2016 to 33 percent in 2046, CBO projects (see Table 5-2). (The effective marginal tax rate on labor income is calculated by averaging labor income across taxpayers, using weights proportional to their income from labor.) The effective marginal tax rate on capital income (returns on investment) is projected to rise from 14 percent to 18 percent over that period.

The projected increase in the effective marginal tax rate on labor income reflects three primary factors:

- *Real bracket creep under the regular income tax.* As households' inflation-adjusted income rose over time, they would be pushed into higher marginal tax brackets. (Because the thresholds for taxing income at different rates are indexed for inflation, increases in income that just kept pace with inflation would not

9. The AMT is a parallel income tax system with fewer exemptions, deductions, and rates than the regular income tax system. Households must calculate the amount they owe under both tax systems and pay whichever is larger. The American Taxpayer Relief Act raised the exemption amounts for the AMT for 2012 and, beginning in 2013, permanently indexed those amounts for inflation. The law also indexed for inflation the income thresholds at which those exemptions phase out and the income threshold at which the second rate bracket for the AMT begins. Although rising real income will gradually subject more taxpayers to the AMT, many of those newly affected taxpayers will owe only slightly more than their regular income tax liability.

Table 5-2.

**Effective Marginal Federal Tax Rates Under CBO's Extended Baseline**

Percent

| | 2016 | 2026 | 2046 |
|---|---|---|---|
| Marginal Tax Rate on Labor Income | 29.7 | 31.0 | 33.1 |
| Marginal Tax Rate on Capital Income | 14.4 | 17.5 | 18.2 |

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The effective marginal tax rate on labor income is the share of an additional dollar of such income that is paid in federal individual income taxes and payroll taxes, averaged among taxpayers with weights proportional to their labor income. The effective marginal tax rate on capital income is the share of the return on an additional dollar of investment made in a particular year that will be paid in taxes over the life of that investment. Rates are calculated for different assets and industries and then averaged over all assets and industries with the shares of total asset values used as weights.

generally raise households' marginal tax rates.) One consequence is that the share of ordinary income subject to the top tax rate of 39.6 percent would rise from 13 percent in 2016 to 16 percent by 2046, CBO estimates.[10]

- *The structure of premium subsidies in the health insurance marketplaces.* Those subsidies are conveyed in the form of tax credits that phase out as income rises over a certain range, increasing taxpayers' marginal rates on income in that range. Under current law, the income range over which the subsidies phase out would expand with inflation, but the subsidies would grow faster than inflation. As a result, over time, for each extra dollar of income someone earned, the subsidy would be reduced by a larger fraction of that dollar, thereby raising that person's effective marginal tax rate.

- *The additional 0.9 percent tax on earnings above certain thresholds that went into effect in 2013.* Over time, that tax would apply to a growing share of labor income because the thresholds are not indexed for inflation.

The effective marginal tax rate on capital income would also rise over the next 30 years, CBO projects. That increase reflects two primary factors:

- *The expiration of certain accelerated depreciation provisions.* The option for certain businesses to immediately deduct from their taxable income 50 percent of the cost of new investments in equipment is scheduled to be phased out by the end of 2019.

- *A declining share of investment income in retirement accounts.* CBO projects that as members of the baby-boom generation continue to retire and draw down the assets in their retirement accounts, the share of investment income earned in those nontaxable accounts will decline relative to the share of investment income earned in taxable accounts.

CBO estimates that real bracket creep would not raise the rate on capital income very much (unlike its effect on the marginal tax rate on labor income) because a large share of capital income is already being taxed at the top rates applicable to ordinary income or to long-term capital gains and dividends.

The increase in the marginal tax rate on labor income would reduce people's incentive to work, and the increase in the marginal tax rate on capital income would reduce their incentive to save. Conversely, the reduced after-tax earnings and savings resulting from those higher taxes would encourage people to work and save more in order to maintain the same amount of after-tax income and savings. Evidence suggests that the former behavioral responses typically prevail and that, on balance, higher marginal tax rates discourage economic activity.[11] (The overall effect of federal taxes on economic activity depends not only on marginal tax rates but also on the amount of revenues raised relative to federal spending and thereby on the resulting federal deficits and debt.)

### Average Tax Rates for Some Representative Households

Because some parameters of the tax code are not indexed for inflation and most are not indexed for real income growth, average federal tax rates would increase over time under the extended baseline.

The cumulative effect of rising prices would significantly reduce the value of parameters of the tax system that are

10. Ordinary income is all income subject to the income tax except long-term capital gains and dividends.

11. For additional discussion, see Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674, and *Taxing Capital Income: Effective Marginal Tax Rates Under 2014 Law and Selected Policy Options* (December 2014), www.cbo.gov/publication/49817.

not indexed for inflation, CBO projects. For example, the amount of mortgage debt eligible for the mortgage interest deduction, which is not indexed for inflation, would fall from $1 million today to about $550,000 in 2046 measured in today's dollars, CBO estimates. And the portion of Social Security benefits that is taxable would increase from about 36 percent now to over 50 percent by 2046, CBO estimates, because the thresholds for taxing benefits are not indexed for inflation. In addition, the maximum values of certain tax credits, such as the child tax credit, are not adjusted for inflation and thus would diminish in value over time.

Under the extended baseline, even tax parameters that are indexed for inflation would lose value over time when compared with income. The thresholds for taxing income at different rates rise with inflation, but because incomes tend to rise faster than inflation, those thresholds still decline relative to income over time. Similarly, according to CBO's projections, the current $4,050 personal exemption amount would double by 2046 because it is indexed for inflation. But income per household will probably almost triple during that period, so the value of the exemption relative to income would decline by almost one-third. That decline would tend to boost average tax rates of lower-income taxpayers, for whom the personal exemption is larger relative to income, by more than those for higher-income taxpayers, for whom the personal exemption is smaller relative to income. And without legislative changes, the proportion of taxpayers claiming the earned income tax credit would fall from 16 percent this year to 12 percent in 2046, CBO projects, as growth in real income made more taxpayers ineligible for the credit.

Those developments and others would cause individual income taxes as a share of income to grow by different amounts for households at different points in the income distribution.

- According to CBO's analysis, a married couple with two children earning the *median total income* of $108,700 (including both cash income and other compensation) in 2016 and filing a joint tax return will pay about 5 percent of their income in individual income taxes (see Table 5-3).[12] By 2046, under current law, a similar couple earning the median income would pay 8 percent of their income in individual income taxes.
- For a married couple with two children earning *half the median total income*, the change in individual income taxes as a share of income would be much greater, CBO estimates: In 2016, such a family will typically receive a net payment from the federal government equal to 8 percent of its income in the form of refundable tax credits, but by 2046 the family would become a net taxpayer, paying about 2 percent of its income in income taxes.
- A married couple with two children earning *four times the median total income* would pay 22 percent of their income in individual income taxes in 2046, CBO projects, much higher than the amount paid by families with lower earnings. But the change in that share—up 3 percentage points from 2016—is much smaller than the 10 percentage-point increase in the share of taxes paid by similar families earning half the median total income.

By contrast, under current law, payroll tax rates across the income distribution would differ only slightly in 2046 from what they are today. Those taxes are principally levied as a flat rate on earned income below a certain threshold, which is indexed for both inflation and overall growth in real earnings. Thus, the changes over the next 30 years in the sum of income and payroll taxes as a share of income would be similar to the changes in income taxes as a share of income.

Although rising real income would contribute to rising average tax rates under current law, that real income growth would also mean that future households would have higher after-tax income than similar households at the same point in the income distribution have today. For example, from 2016 to 2046, real after-tax income for a couple earning the median income would grow by more than 75 percent under the extended baseline, CBO projects.

12. The examples incorporate the assumption that all income that taxpayers receive is from labor compensation. Furthermore, median income is assumed to grow with average income, so income at each multiple of the median grows at the same rate. For details about the calculations, see Table 5-3.

Table 5-3.

## Individual Income and Payroll Taxes as a Share of Total Income Under CBO's Extended Baseline

| | Income (2016 dollars) | | Taxes as a Share of Total Income (Percent) | |
|---|---|---|---|---|
| | Cash[a] | Total[b] | Income Taxes[c] | Income and Payroll Taxes[d] |
| | **Taxpayer Filing a Single Return** | | | |
| Half the Median Total Income | | | | |
| 2016 | 11,600 | 18,800 | -1 | 9 |
| 2046 | 19,900 | 37,100 | 2 | 10 |
| Median Total Income | | | | |
| 2016 | 29,100 | 37,600 | 6 | 18 |
| 2046 | 50,100 | 69,700 | 7 | 18 |
| Twice the Median Total Income | | | | |
| 2016 | 64,000 | 75,200 | 10 | 23 |
| 2046 | 110,500 | 134,700 | 12 | 25 |
| Four Times the Median Total Income | | | | |
| 2016 | 134,800 | 150,400 | 15 | 27 |
| 2046 | 233,800 | 265,300 | 16 | 28 |
| | **Married Couple (With Two Children) Filing a Joint Return** | | | |
| Half the Median Total Income | | | | |
| 2016 | 35,400 | 54,400 | -8 | 2 |
| 2046 | 58,800 | 104,000 | 2 | 10 |
| Median Total Income | | | | |
| 2016 | 85,900 | 108,700 | 5 | 17 |
| 2046 | 145,400 | 197,200 | 8 | 19 |
| Twice the Median Total Income | | | | |
| 2016 | 186,900 | 217,400 | 11 | 25 |
| 2046 | 318,500 | 384,400 | 15 | 28 |
| Four Times the Median Total Income | | | | |
| 2016 | 398,100 | 435,500 | 19 | 29 |
| 2046 | 681,900 | 758,700 | 22 | 31 |

Source: Congressional Budget Office, using data from the March 2015 Current Population Survey.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

CBO converted income amounts for 2046 into 2016 dollars by using the price index for personal consumption expenditures. All income amounts have been rounded to the nearest $100.

Underlying these calculations are several assumptions: that premiums for employment-based health insurance in 2046 will not exceed the excise tax threshold in the Affordable Care Act; that taxpayers itemize their deductions if those deductions are greater than the standard deduction; that their deduction for state and local taxes equals 9 percent of their wages; that their other deductions equal 12 percent of their wages; and that in each example involving a married couple, the spouses earn the same amount.

a. Cash income consists of a taxpayer's wages.

b. Total income consists of a taxpayer's cash income, the costs that the taxpayer's employer pays for employment-based health insurance, and the employer's share of payroll taxes.

c. Negative tax rates result when the people in an income group receive more in refundable tax credits, such as the earned income and child tax credits, than they owe in taxes.

d. Payroll taxes include the share paid by employers.

CHAPTER

6

# The Effects of Illustrative Budgetary Paths on the Long-Term Outlook

This chapter expands on the analysis in the preceding chapters by showing how the federal budget and the nation's economy would evolve under three illustrative budgetary paths that involve changes in the federal deficit and in debt held by the public. The projections in this chapter represent the Congressional Budget Office's assessment of how deficits and the resulting amount of federal borrowing under the illustrative paths would affect the economy and how those macroeconomic effects would, in turn, feed back into the federal budget.

Under the first two illustrative paths, cumulative deficits—excluding interest payments and before macroeconomic feedback is taken into account—would be reduced by $2 trillion and $4 trillion, respectively, over the next 10 years in relation to CBO's extended baseline.[1] Under the third illustrative path, such deficits would exceed those projected in the extended baseline by $2 trillion over the next decade.[2] In later years, the paths would change deficits by the same percentage of gross domestic product (GDP) as in 2026. (CBO also analyzed the effects on the budget and the economy of limiting Social Security benefits to amounts payable from dedicated funding. See Box 6-1 on page 73.)

In the long term, the paths with smaller deficits and debt would lead to higher output by increasing the amount of money available for private investment. The third path, with larger deficits and debt, would have the opposite effect: It would reduce output by drawing money away from, or crowding out, private investment. In the short term, the paths with lower deficits would reduce overall demand for goods and services by lowering government purchases and disposable income, causing output to be lower than it otherwise would be over the next few years. The path with larger deficits would have the opposite effect, increasing demand and boosting output. Those short- and long-term macroeconomic effects feed back into the federal budget, adding to or subtracting from the paths' direct effects on the deficit, primarily by altering the amount of taxable income and the federal government's interest payments.

When estimating output, CBO focused on effects on gross national product (GNP), which—unlike the more commonly cited GDP—includes the income that U.S. residents earn abroad and excludes the income that foreigners earn in this country. It is therefore a better measure of the resources available to U.S. households.

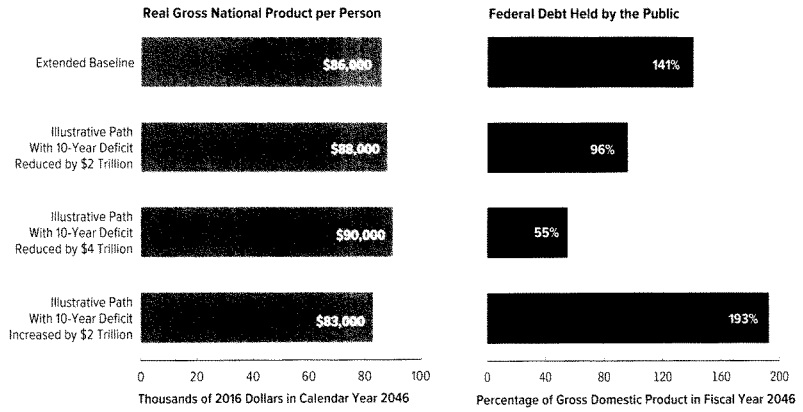
For the three illustrative paths, CBO's analysis yields the following estimates for macroeconomic and budgetary outcomes:

1. Those paths are identical to the illustrative scenarios analyzed last June in *The 2015 Long-Term Budget Outlook*. For more details, see Congressional Budget Office, *The 2015 Long-Term Budget Outlook* (June 2015), Chapter 6, www.cbo.gov/publication/50250.

2. The third path would increase the deficit by an amount similar to that in the alternative fiscal scenario presented in *The 2015 Long-Term Budget Outlook*. That scenario incorporated several assumptions: that certain policies in place in the summer of 2015 but scheduled to change under current law would continue, that some provisions of law that might be difficult to sustain for a long period would change, and that federal revenues and certain kinds of federal spending would remain at or near their historical shares of gross domestic product. In the fall of 2015, some policies that were assumed in that alternative fiscal scenario were permanently enacted in legislation, meaning that an updated version of that scenario would have a considerably smaller effect on deficits in relation to the extended baseline. Therefore, CBO chose to present the budgetary effects of an illustrative path (with unspecified fiscal policies) that would increase the cumulative deficit (excluding interest payments and before macroeconomic feedback is taken into account) by $2 trillion over the next 10 years in relation to the extended baseline.

Figure 6-1.

**Output per Person and Debt in 2046 Under CBO's Extended Baseline and Illustrative Budgetary Paths**




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

Gross national product differs from gross domestic product, the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The estimates of federal debt held by the public include macroeconomic feedback.

- The path that would reduce deficits (excluding interest payments and before macroeconomic feedback is taken into account) by $2 trillion over the next decade would result in federal debt equal to 96 percent of GDP in 2046, greater than the current 75 percent and considerably above the average of 39 percent over the past 50 years (see Figure 6-1). CBO projects that real (inflation-adjusted) GNP in 2046 would be about 3 percent higher under this path than under the extended baseline.

- The path that would reduce deficits by $4 trillion—defined in the same manner as the first path but with decreases in the deficit twice as large in each year—would result in federal debt amounting to 55 percent of GDP in 2046, still well above its historical average but less than the current percentage. CBO projects that real GNP in 2046 would be about 5 percent higher under this path than under the extended baseline.

- The path that would result in larger deficits—defined in the same manner as the first path but with increases in the deficit each year rather than decreases—would result in federal debt equal to 193 percent of GDP in 2046, about five times as large as its average over the past 50 years. CBO projects that real GNP in 2046 would be about 3 percent lower under this path than under the extended baseline.

In addition to their effects over the long term, the three budgetary paths would have significant effects on the economy during the next few years. Those effects occur through changes in overall demand for goods and services, which are better captured by the measure GDP than GNP. CBO estimates that the decrease in deficits, and thus in overall demand, that would occur under the first two paths would cause real GDP in 2017 to be 0.1 percent and 0.3 percent lower, respectively, than it would be under current law. Under the third path, a boost in demand for goods and services would cause real

GDP to be 0.1 percent higher in 2017 than is projected under current law.

For simplicity, and to avoid presuming which fiscal policies lawmakers might choose to alter the deficit, CBO analyzed the illustrative paths without specifying the tax and spending policies underlying them. Consequently, the projected outcomes under the paths do not reflect any *direct* changes to incentives to work and save; in particular, CBO assumed that marginal tax rates and transfers to working-age people would be the same as they are under current law. CBO also assumed that federal investment under the illustrative paths, and the contribution that such spending makes to future productivity and output, would be the same as under the extended baseline. Therefore, the estimated macroeconomic effects of the budgetary paths in relation to the extended baseline arise solely from changes in deficits and debt. Because the magnitude of the macroeconomic effects is uncertain, CBO reports not only a central estimate for the outcome of each path but also a range of likely outcomes.[3]

## Long-Term Economic Effects of the Illustrative Paths

The illustrative budgetary paths examined in this chapter would affect the economy in the long-term by changing federal deficits and debt. Because CBO analyzed the illustrative paths without specifying the tax and spending policies underlying them, the projected outcomes under the paths do not reflect any direct changes to incentives to work, save, and invest. It is important to note that it is difficult to identify policies that might significantly alter the course of budget deficits without directly changing such incentives. Those changes would have various other effects on the economy that are beyond the scope of this chapter.

### How Changes in Federal Borrowing Affect the Economy

Changes in federal borrowing affect the economy by altering the amount of money available for private investment. The rest of the discussion in this section focuses on what would happen if federal borrowing increased; decreases would have opposite effects.

**Effects on Private Investment.** On the basis of existing research on the topic, CBO concludes that increased borrowing by the federal government generally crowds out private investment in productive capital in the long term.[4] Crowding out occurs because the portion of saving that people use to buy government securities is not available to finance private investment. The result is a smaller stock of capital and lower output and income in the long term than would otherwise be the case (all else being equal). Lower income would reduce tax revenues. Federal noninterest spending would also be lower—although the effect would be smaller than that on revenues—if income was lower because Social Security benefits are linked to earnings and because total spending on health care tends to vary with total income over the long term. This analysis incorporates the assumption that changes in income do not affect other noninterest spending.

Two factors offset part of that crowding-out effect: Additional federal borrowing tends to boost private saving, which increases the total funds available to purchase federal securities and finance private investment; and higher interest rates tend to increase net inflows of capital from other countries by attracting more foreign capital to the United States and inducing U.S. savers to keep more of their money at home.

Private saving rises because some people anticipate that policymakers will raise taxes or cut spending in the future to cover the cost of paying interest on the additional accumulated debt, so those people increase their own saving to prepare for paying higher taxes or receiving less in benefits. In addition, the decline in investment caused by crowding out increases the productivity of existing capital because more workers make use of each unit of capital—each computer or piece of machinery, for example. That greater productivity raises the return on capital. A higher return on capital boosts the return on other investments (such as interest rates on federal debt) that are competing for private saving. The resulting increase in those returns makes saving more attractive and thus boosts private saving. However, the rise in private saving is generally a good deal smaller than the increase in federal borrowing,

3. For certain key variables in its long-term economic models, CBO has developed ranges of values that are based on research on those variables; each range is intended to cover roughly the middle two-thirds of the likely values for the variable. To calculate the ranges of estimates for the effects of each set of fiscal policies, CBO used the ranges of values for each variable. To calculate the central estimates, it used values for the variables at the midpoints of those ranges.

4. For a review of evidence about the effect of federal deficits and borrowing on private investment, see Jonathan Huntley, *The Long-Run Effects of Federal Budget Deficits on National Saving and Private Domestic Investment*, Working Paper 2014-02 (Congressional Budget Office, February 2014), www.cbo.gov/publication/45140.

so greater federal borrowing leads to less private investment. CBO's central estimate, which is based on existing research on the topic, is that private saving rises by 43 cents for every one-dollar increase in federal borrowing in the long run, leaving a net decline of 57 cents in savings available for private investment.

The additional net inflows of capital from other countries also prevent investment in this country from declining as much as the increase in federal borrowing. CBO's central estimate, again drawn from existing research on the topic, is that, over the long run, net inflows of private capital rise by 24 cents for every one-dollar increase in government borrowing. However, an increase in inflows of capital from other countries also means that more profits and interest payments will eventually flow overseas. Therefore, although flows of capital into the United States can help moderate a decline in domestic investment, part of the income arising from that additional investment does not accrue to U.S. residents. The result is that greater net inflows of capital keep GDP from declining as much as it would otherwise, but they are less effective in restraining the decline in GNP.[5] Thus, other things being equal, increases in debt cause greater reductions in GNP than in GDP, and reductions in debt lead to greater increases in GNP than in GDP.

All told, CBO estimates that when the federal deficit and borrowing go up by one dollar, private saving increases by 43 cents and inflows of foreign capital rise by 24 cents. Those two offsets to the crowding-out effect result in a net decline of 33 cents in domestic investment in the long run, CBO estimates. To reflect the wide range of estimates in the economics literature of how government borrowing affects domestic investment, CBO also uses a range of estimates for those effects: At the low end of that range, for each dollar that deficits rise, domestic investment falls by 15 cents; at the high end of that range, domestic investment falls by 50 cents.

CBO's estimates of the effects of higher federal debt on private saving, net capital inflows, and interest rates are based on historical experience. However, history may not be a good guide to the effects of rising debt in the current environment because a large and persistent increase in the ratio of debt to GDP is an outcome that is unprecedented in the United States; large increases in debt have been temporary, such as those that occurred during and immediately after wars or severe economic downturns. If participants in financial markets came to believe that policymakers intended to allow federal debt as a percentage of GDP to continue to rise, interest rates would probably increase by more than the historical relationship between federal debt and interest rates suggests. In addition, under such conditions, private saving and net capital inflows might not respond to new federal debt as they have in the past, and crowding out could be more severe.

**Effects on the Supply of Labor.** The effect of deficits on investment also reduces the amount of capital each worker uses, thereby lowering workers' productivity and wages. Reductions in the wage rate decrease people's incentive to work because reduced compensation for an additional hour of work makes work less valuable than other uses of a person's time. That phenomenon, known as the substitution effect, tends to reduce the labor supply when the wage rate declines. However, because lower wages also decrease the after-tax income that people earn from the work they are already doing, they will need to work more to maintain their standard of living. That phenomenon, known as the income effect, tends to increase the labor supply. On the basis of CBO's review of research on the topic, the agency concludes, as do most analysts, that the former effect outweighs the latter, meaning that a lower wage rate decreases the labor supply.[6] (A higher wage rate would have the opposite effect.) Fewer hours of work result in lower output and income.

To reflect the high degree of uncertainty about the size of the effect that changes in the wage rate have on the number of hours people choose to work, CBO uses a range of

5. The difference in the effect of an increase in debt on GDP and on GNP depends, in large part, on the amount of additional capital that foreigners invest in the United States and on the rate of return that they receive on their investments. The increase in the return on capital in this country and the increase in foreigners' net holdings of U.S. assets—both of which imply increases in the amount of income earned by foreign investors—decrease GNP relative to GDP. In CBO's analyses of fiscal policy, the rate of return earned by foreign investors in the United States changes when the rate of return on capital in this country changes. However, on the basis of the United States' experience in recent decades, that response is estimated to be less than one for one.

6. For details on CBO's estimates of the responsiveness of the labor supply to changes in the after-tax wage rate, see Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674; and for a review of the academic research about the effects of changes in the after-tax wages on the labor supply, see Robert McClelland and Shannon Mok, *A Review of Recent Research on Labor Supply Elasticities*, Working Paper 2012-12 (Congressional Budget Office, October 2012), www.cbo.gov/publication/43675.

values in its analyses of fiscal policy.[7] The responsiveness of the labor supply to the wage rate is often expressed as the total wage elasticity (the percentage change in total labor income caused by a 1 percent change in after-tax wages). The total wage elasticity equals the substitution elasticity (which measures the substitution effect) minus the income elasticity (which measures the income effect). In this analysis, CBO's central estimate for the change in the labor supply in response to a reduction in the wage rate corresponds to a total wage elasticity of 0.19 (composed of a substitution elasticity of 0.24 minus an income elasticity of 0.05). CBO's range of likely changes in the labor supply is bounded at the low end by a total wage elasticity of about 0.06 (with a substitution elasticity of 0.16 and an income elasticity of 0.10) and at the high end by a value of about 0.32 (with a substitution elasticity of 0.32 and an income elasticity of zero).

**Other Consequences.** As Chapter 1 discusses in greater detail, high and rising federal debt would, in the long term, have several negative consequences in addition to the effects just described:

- Increased borrowing would increase the amount of interest that the government pays to its lenders, all else being equal. Those larger interest payments would make it more difficult to reduce future budget deficits, necessitating larger increases in taxes or reductions in noninterest spending.
- Increased borrowing would restrict policymakers' ability to use tax and spending policies to respond to unexpected challenges, such as economic downturns or financial crises. As a result, those challenges would tend to have larger negative effects on the economy and on people's well-being.
- Increased borrowing would increase the probability of a fiscal crisis in which investors lost so much confidence in the government's ability to manage its budget that the government was unable to borrow at affordable rates. Such a crisis would present policymakers with extremely difficult choices and would probably have a very significant negative impact on the country.

7. CBO uses those same values to estimate the effect on the labor supply of changes in after-tax hourly wages.

### How CBO Analyzed the Long-Term Effects of Federal Borrowing on the Economy

To analyze medium-term to long-term effects of changes in federal borrowing in the illustrative paths, CBO used an enhanced version of a model originally developed by Robert Solow wherein people base their decisions about working and saving primarily on current economic conditions—especially wage levels, interest rates, and government policies. Their responses to changes in such conditions generally mirror their responses to economic and policy developments in the past; as a result, the responses reflect people's anticipation of future policies in a general way but not their expectations of particular future developments.[8]

## Long-Term Effects of the Illustrative Paths With Smaller Deficits

The first two illustrative paths would gradually decrease deficits through unspecified increases in tax revenues, cuts in spending, or some combination of the two.[9] In the long run, the reduced federal deficits and debt under those scenarios would cause output and income to be higher and the ratio of federal debt to GDP to be lower than they would be under the extended baseline.

### Deficits

In the two paths that lead to smaller deficits, CBO assumed that the cumulative deficit (excluding interest payments and before macroeconomic feedback is taken into account) between 2017 and 2026 would be $2 trillion or $4 trillion lower than what is projected under current law. The reduction in the deficit in relation to the extended baseline would be comparatively small in 2017 but would increase steadily through 2026; at that point, the reduction in the deficit would be $360 billion, or about 1.3 percent of GDP, under the first path and $720 billion, or over 2.5 percent of GDP, under the second. In each

8. For details of CBO's model, see Congressional Budget Office, *CBO's Method for Estimating Potential Output: An Update* (August 2001), www.cbo.gov/publication/13250. For a general explanation of how CBO analyzes the effects of fiscal policies, see Congressional Budget Office, *How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy* (November 2014), www.cbo.gov/publication/49494.

9. For a comparison of the estimated budgetary and economic outcomes under similar illustrative paths with those under the paths specified by the Honorable Tom Price, Chairman of the House Budget Committee, and his staff, see Congressional Budget Office, *Budgetary and Economic Outcomes Under Paths for Federal Revenues and Noninterest Spending Specified by Chairman Price, March 2016* (March 2016), www.cbo.gov/publication/51260.

Table 6-1.

**Long-Term Effects on Real GNP Under CBO's Illustrative Budgetary Paths**

Percentage Difference From Level in the Extended Baseline

| | 2026 | 2046 |
|---|---|---|
| Illustrative Path With 10-Year Deficit Reduced by $2 Trillion | | |
| Central estimate | 0.5 | 3 |
| Range | 0.3 to 0.8 | 1 to 4 |
| Illustrative Path With 10-Year Deficit Reduced by $4 Trillion | | |
| Central estimate | 1.0 | 5 |
| Range | 0.5 to 1.5 | 2 to 8 |
| Illustrative Path With 10-Year Deficit Increased by $2 Trillion | | |
| Central estimate | -0.5 | -3 |
| Range | -0.8 to -0.3 | -6 to -1 |

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

Gross national product differs from gross domestic product, the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The central estimates and ranges reflect alternative assessments of two factors: how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

GNP = gross national product.

subsequent year, the reduction, measured as a percentage of GDP, would equal the 2026 reduction.

### Output and Interest Rates

Under the first path, which would reduce 10-year deficits by $2 trillion, real GNP would be higher than it would be under the extended baseline by 0.5 percent in 2026 and by about 3 percent in 2046, according to CBO's central estimates (see Table 6-1). According to CBO's ranges of likely values for key variables, the increase in real GNP would probably be between 0.3 percent and 0.8 percent in 2026 and between about 1 percent and 4 percent in 2046. The interest rate on 10-year Treasury securities in 2046 would be about half a percentage point lower under that path than under the extended baseline, according to CBO's central estimate.

Under the second path, which would reduce 10-year deficits by $4 trillion, real GNP would be higher than it would be under the extended baseline by 1 percent in 2026 and by about 5 percent in 2046, CBO estimates. According to CBO's ranges of likely values for key variables, the increase in real GNP would probably be between 0.5 percent and 1.5 percent in 2026 and between about 2 percent and about 8 percent in 2046. The interest rate on 10-year Treasury securities in 2046 would be about three quarters of a percentage point lower under that path than under the extended baseline, according to CBO's central estimate.

CBO projects that in either case, real GNP per person would be substantially higher in 2046 than in 2016 (see Figure 6-2).

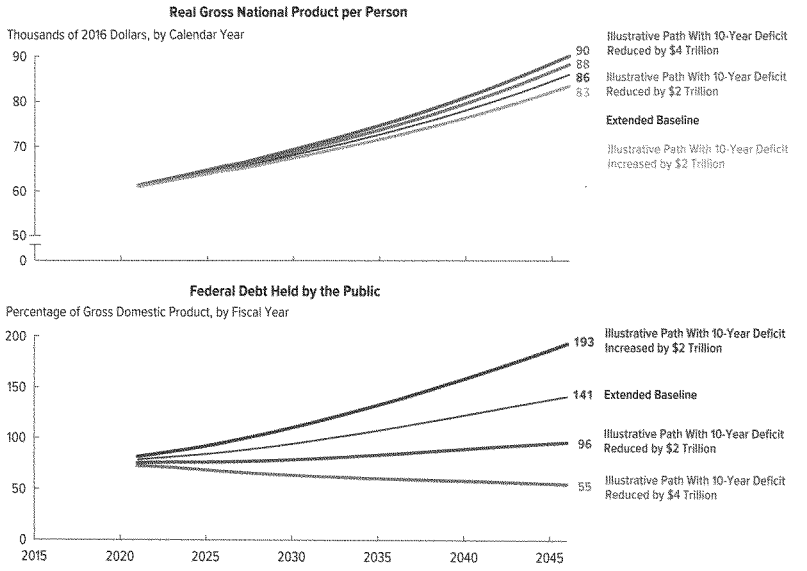
### Budgetary Outcomes

The higher output and lower interest rates under the illustrative paths would improve budgetary outcomes in the long term. According to CBO's central estimates, under the first path, federal debt held by the public in 2046 would stand at 96 percent of GDP—45 percentage points lower than it is projected to be under the extended baseline (see Figure 6-2 and Table 6-2). Under the second path, federal debt held by the public would fall to 55 percent of GDP in 2046, 86 percentage points lower than it is projected to be under the extended baseline; such debt is currently 75 percent of GDP and averaged 39 percent over the past 50 years.

Both paths would limit the other consequences of high and rising federal debt that were discussed above,

**Figure 6-2.**

**Output per Person and Debt Under CBO's Extended Baseline and Illustrative Budgetary Paths**




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

Gross national product differs from gross domestic product, the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The estimates of federal debt held by the public include macroeconomic feedback.

This figure displays only long-term effects. Results over the next few years are discussed later in this chapter.

compared with what is projected under the extended baseline. Although both paths would result in debt that was high by historical standards, the policy changes that would be needed to reduce deficits to a particular level, the constraints on policymakers, and the risk of a fiscal crisis would be smaller under those paths than they would be under the extended baseline, in which the debt-to-GDP ratio is projected to increase substantially.

## Long-Term Effects of the Illustrative Path With Larger Deficits

For comparison with the estimated outcomes under the paths with smaller deficits, CBO analyzed the effects of a third illustrative path that would gradually increase deficits through unspecified decreases in tax revenues or increases in spending. Compared with the extended baseline, increased deficits and debt under that path would reduce output and increase the ratio of federal debt to GDP in the long term.

Table 6-2.

**Long-Term Deficits and Debt Under CBO's Extended Baseline and Illustrative Budgetary Paths**

Percentage of Gross Domestic Product

| | 2026 | 2046 |
|---|---|---|
| | **Deficit (-) or Surplus, Excluding Interest Payments** | |
| Extended Baseline | -1.8 | -3 |
| Illustrative Path With 10-Year Deficit Reduced by $2 Trillion | -0.4 | -1 |
| Illustrative Path With 10-Year Deficit Reduced by $4 Trillion | 1.0 | * |
| Illustrative Path With 10-Year Deficit Increased by $2 Trillion | -3.2 | -5 |
| | **Total Deficit (-) or Surplus** | |
| Extended Baseline | -4.9 | -9 |
| Illustrative Path With 10-Year Deficit Reduced by $2 Trillion | -3.1 | -5 |
| Illustrative Path With 10-Year Deficit Reduced by $4 Trillion | -1.4 | -2 |
| Illustrative Path With 10-Year Deficit Increased by $2 Trillion | -6.6 | -13 |
| | **Federal Debt Held by the Public** | |
| Extended Baseline | 86 | 141 |
| Illustrative Path With 10-Year Deficit Reduced by $2 Trillion | 76 | 96 |
| Illustrative Path With 10-Year Deficit Reduced by $4 Trillion | 67 | 55 |
| Illustrative Path With 10-Year Deficit Increased by $2 Trillion | 95 | 193 |

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

The estimates of deficits, surpluses, and debt include macroeconomic feedback.

* = between zero and 0.5 percent.

### Deficits

Under the third path, cumulative deficits between 2017 and 2026 would exceed the deficit under the extended baseline by $2 trillion—that is, by the amount deficits would be reduced under the first illustrative path examined above. CBO assumed that the path would increase deficits steadily over the next decade in relation to what they would be under the extended baseline. In 2026, the deficit, excluding interest payments, would be $360 billion, or about 1.3 percent of GDP, larger than the amount under the extended baseline before macroeconomic feedback is taken into account. After 2026, the increase in such deficits in relation to the extended baseline would continue at the same percentage of GDP as in 2026.

### Output and Interest Rates

The third path's higher deficits and debt would crowd out private investment, thereby causing output to be lower in the long term than under the extended baseline. With those macroeconomic effects incorporated, real GNP would be lower than it would be under the extended baseline by 0.5 percent in 2026 and 3 percent in 2046, CBO estimates (see Table 6-1 on page 68). Using the likely ranges for key variables, the agency estimates that real GNP would be between 0.3 percent and 0.8 percent lower in 2026, and between 1 percent and 6 percent lower in 2046 than under the extended baseline. However, even with the negative impact of higher debt, CBO projects that real GNP per person would be considerably higher in 2046 than in 2016 because of continued growth in productivity (see Figure 6-2 on page 69). As a result of higher federal debt, the interest rate on 10-year Treasury securities would be about half a percentage point higher than under the extended baseline, according to CBO's central estimate.

### Budgetary Outcomes

Under the third path, budgetary outcomes would be worsened by the economic changes that resulted from the path's higher deficits and debt. With the effects of lower

output and higher interest rates incorporated, federal debt held by the public under the path would reach 193 percent of GDP in 2046, CBO estimates (see Figure 6-2 on page 69 and Table 6-2 on page 70); it is projected to be 141 percent under the extended baseline. Thus, debt would be much higher and would rise much more rapidly than under the extended baseline.

In addition to its effects on output, income, and interest rates, the third path would also bring about many of the other consequences associated with high and rising federal debt that are discussed above; those effects would be especially acute under this path because the debt would be so high and rise so rapidly. Such a path would necessitate much larger policy changes to reduce deficits to a particular level than the first two paths would. In addition, it would impose considerable constraints on policymakers and significantly raise the risk of a fiscal crisis.

## Short-Term Economic Effects of the Illustrative Paths

The budgetary paths whose long-term macroeconomic effects have been analyzed in this chapter would have short-term effects as well. In the short term, policies that increased deficits would boost the overall demand for goods and services, thereby raising output and employment above what they would be otherwise. Similarly, policies that decreased deficits would reduce overall demand, thereby lowering output and employment. In CBO's assessment, those effects are stronger when short-term interest rates are near zero and output is below its potential (maximum sustainable) level, in part because under those conditions the Federal Reserve is unlikely to adjust short-term interest rates to try to offset the effects of changes in deficits.

### Effects of the Paths With Smaller Deficits

Under the two illustrative paths that would reduce deficits, real GDP would be lower over the next few years than is projected under current law, CBO estimates. Because the agency did not specify the fiscal policies underlying those paths, the estimated macroeconomic effects arise solely from the effect on aggregate demand of differences in overall deficits.[10]

In the first path, which would lower deficits by $2 trillion, the reductions in the deficit (excluding interest payments) would amount to $40 billion in 2017 and $76 billion in 2018 before macroeconomic feedback is taken into account. In the second path, which would lower deficits by $4 trillion, those reductions would be $80 billion in 2017 and $151 billion in 2018. CBO estimates that both paths would reduce overall demand for goods and services, thereby lowering output in the short term. Under the first path, real GDP in 2017 would be 0.1 percent lower than it is projected to be under current law (or it would be equal to or as much as 0.2 percent lower than what it is projected to be under current law, according to CBO's ranges of likely values for key variables; see Table 6-3). In 2018, real GDP would again be 0.1 percent lower (or it would be equal to or as much as 0.3 percent lower than under current law, according to CBO's ranges of likely values). Under the second path, real GDP would be 0.3 percent lower than it is projected to be under current law in both 2017 and 2018 (or between 0.1 percent and 0.5 percent lower in 2017 and equal to or as much as 0.5 percent lower in 2018 than what would occur under current law, according to CBO's ranges of likely values). The paths would most likely continue to reduce real GDP below what it would be under current law for a few years after 2018, but CBO has not estimated the effects for those years.

Because businesses would produce less, they would hire fewer workers. According to CBO's central estimates, the number of full-time-equivalent employees under the first path would be 0.2 and 0.3 million smaller in 2017 and 2018, respectively, than under current law; under the second path, there would be 0.4 million fewer full-time-equivalent employees in 2017 and 0.5 million fewer in 2018 than under current law.[11]

10. CBO assumed that—when short-term interest rates were at or very near zero and monetary policy was thought to be constrained—each one-dollar change in budget deficits (excluding interest payments) relative to those under current law would change output cumulatively by one dollar over several quarters. That effect is estimated to be smaller when short-term interest rates are higher and monetary policymakers have more flexibility in responding to reductions in aggregate demand. For a similar approach, see Congressional Budget Office, *Budgetary and Economic Outcomes Under Paths for Federal Revenues and Noninterest Spending Specified by Chairman Price, March 2016 (March 2016)*, www.cbo.gov/publication/51260.

11. A year of full-time-equivalent employment is equal to 40 hours of employment per week for one year.

Table 6-3.

**Short-Term Effects on Output and Employment Under CBO's Illustrative Budgetary Paths**

| | Inflation-Adjusted GDP (Percentage difference from level in the extended baseline) | | Full-Time-Equivalent Employment[a] (Difference in millions from level in the extended baseline) | |
|---|---|---|---|---|
| | 2017 | 2018 | 2017 | 2018 |
| Illustrative Path With 10-Year Deficit Reduced by $2 Trillion | | | | |
| Central estimate | -0.1 | -0.1 | -0.2 | -0.3 |
| Range | -0.2 to 0 | -0.3 to 0 | -0.4 to -0.1 | -0.4 to -0.1 |
| Illustrative Path With 10-Year Deficit Reduced by $4 Trillion | | | | |
| Central estimate | -0.3 | -0.3 | -0.4 | -0.5 |
| Range | -0.5 to -0.1 | -0.5 to 0 | -0.7 to -0.1 | -0.9 to -0.1 |
| Illustrative Path With 10-Year Deficit Increased by $2 Trillion | | | | |
| Central estimate | 0.1 | 0.1 | 0.2 | 0.3 |
| Range | 0 to 0.2 | 0 to 0.3 | 0.1 to 0.4 | 0.1 to 0.4 |

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

The central estimates and ranges reflect alternative assessments of three factors: how much changes in overall demand affect output in the short term; how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

GDP = gross domestic product.

a. Full-time-equivalent employment is calculated by dividing the total number of hours gained or lost during a year by 2,080, the annual number of hours worked by a full-time employee.

### Effects of the Path With Larger Deficits

Under the illustrative path that would increase deficits, real GDP would be higher in the next few years than is projected under current law, CBO estimates. That path would boost deficits (excluding interest payments) by $40 billion in 2017 and by $76 billion in 2018 before macroeconomic feedback is taken into account—that is, by the same amounts the path with $2 trillion of deficit reduction would shrink them in those years. The resulting boost in overall demand would increase real GDP above what is projected under current law by 0.1 percent in both 2017 and 2018, CBO estimates. According to the agency's ranges of likely values for key variables, real GDP would probably be equal to or as much as 0.2 percent higher in 2017 and up to 0.3 percent higher in 2018 than what is projected under current law.

To produce that additional amount, businesses would hire more workers. As a result, the number of full-time-equivalent employees would be greater than is projected under current law by 0.2 million in 2017 and by 0.3 million in 2018, CBO estimates.

Box 6-1.

## Long-Term Effects of Limiting Social Security Benefits to Amounts Payable From Dedicated Funding

The Congressional Budget Office projects that, without legislative action, the worsening shortfall in the Social Security program's finances would cause the program's combined trust funds to be exhausted in calendar year 2029 (see Chapter 2).[1] After exhaustion, trust fund balances would no longer be available to make up the gap between benefits specified in current law and annual trust fund receipts. The manner in which that situation was resolved would have important implications for the federal budget. CBO's extended baseline incorporates one set of assumptions about that resolution, and the agency also analyzed a scenario incorporating an alternative set.

The extended baseline reflects the assumption that the Social Security Administration will pay benefits as scheduled under current law regardless of the status of the program's trust funds—an assumption that is consistent with a statutory requirement that CBO, in its 10-year baseline projections, assume that funding for entitlement programs is adequate to make all payments required by law.[2] However, if the trust funds' balance declined to zero and current revenues were insufficient to cover benefits specified in law, the Social Security Administration would no longer be permitted to pay beneficiaries the full amounts to which they were entitled when payments were due because other laws prohibit officials from making expenditures in excess of available funds. The potential conflict would have to be resolved by the Congress or in the courts.[3]

If benefits were limited to the amounts payable from dedicated funding, benefits would be reduced by 29 percent in 2030 and by greater percentages in later years in relation to the amounts in CBO's extended baseline. Although it is unclear how much the specific amounts for beneficiaries would be reduced under that scenario, this analysis incorporates the assumption that each recipient's annual benefit would be reduced by the percentage necessary for outlays to match revenues in each year after the trust funds were exhausted.

In CBO's assessment, the reduction in benefits would lower deficits (including debt service) by 1 percent of gross domestic product (GDP) in 2030 and by a much larger 4 percent of GDP in 2046. (In CBO's extended baseline, the projected deficit in 2046 is 9 percent of GDP.)

The reduction in benefits would cause some affected workers to choose to remain in the labor force longer than they would have otherwise, which would increase the supply of labor and thus the economy's output in the long term. Lower deficits and debt would also lead to higher output and lower interest rates than what CBO projects in the extended baseline. With payable benefits, gross national product in 2046 would be 3 percent higher and interest rates 0.4 percentage points lower than under the extended baseline, CBO estimates.

The higher output and lower interest rates would improve budgetary outcomes. With those macroeconomic effects incorporated into its analysis, CBO estimates that the ratio of federal debt held by the public to GDP in 2046 would stand at 101 percent, which is 40 percentage points lower than under the extended baseline. The other consequences of high and rising debt would also be diminished: The policy changes necessary to reduce deficits to a particular level, the constraints on policymakers, and the risk of a fiscal crisis would be smaller than under the extended baseline.

CBO's estimates of the macroeconomic and budgetary outcomes with payable benefits are based on the assumption that people would not change their decisions regarding consumption, saving, and work in anticipation of lower Social Security benefits. In CBO's assessment, if people responded to the prospect of lower benefits, they would increase their saving by cutting consumption and working more, both of which would help reduce the impact that lower future benefits would have on their future income and consumption. That increase in saving and in the labor supply would boost the capital stock and GDP, thereby raising taxable income and revenues and further lowering deficits. As a result, the ratio of federal debt held by the public to GDP in 2046 would probably be less than 101 percent, the amount CBO estimates that ratio would be if people did not change their consumption, saving, or work decisions in anticipation of lower Social Security benefits.

1. Although the two trust funds are legally separate, in this report, CBO follows the common analytical convention of considering them to be combined. For a detailed discussion of various Social Security policy options, see Congressional Budget Office, *Social Security Policy Options, 2015* (December 2015), www.cbo.gov/publication/51011.

2. See sec. 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985, Public Law 99-177 (codified at 2 U.S.C. §907(b)(1) (2012)).

3. Noah P. Meyerson, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report for Congress RL33514 (Congressional Research Service, August 2014), available from the U.S House of Representatives, Committee on Ways and Means, *2014 Green Book*, Chapter 1: Social Security, "Social Security Congressional Research Service Reports" (accessed July 8, 2016), http://go.usa.gov/cCXcG.

CHAPTER

# 7

# The Uncertainty of Long-Term Budget Projections

Budget projections are inherently uncertain. The projections in this report generally reflect current law and estimates of future economic conditions and demographic trends. However, if future policies governing taxes and spending diverge from what is prescribed in current law, budgetary outcomes will differ from those in the Congressional Budget Office's extended baseline, as the preceding chapter shows. Even if laws do not change, the economy, demographics, and other factors will undoubtedly differ from what CBO projects, and those variations will in turn cause budgetary outcomes to deviate from the projections in this report. Those differences could be within the ranges of experience observed in the relevant historical data—which, for the factors that CBO analyzes, cover roughly the past 50 to 70 years—or they might depart from historical experience. Moreover, significant budgetary effects could result from channels that CBO has not attempted to quantify in its analysis.

To illustrate some of the uncertainty associated with long-term budgetary outcomes, CBO constructed alternative projections that show what would happen to the budget if the values for various underlying factors differed from those used in the extended baseline. The alternative projections are based largely on the variation over time in the underlying factors' 30-year averages, as well as on consideration of possible future economic and demographic developments. The agency focused on four factors that are among the most fundamental—and yet most uncertain—inputs into its long-term economic and budget projections. Specifically, CBO quantified the consequences of alternative paths for the following variables:

- The labor force participation rate,
- The growth rate of total factor productivity—that is, the growth of real (inflation-adjusted) output that is not explained by the growth of labor and capital,[1]
- Interest rates on federal debt held by the public, and
- The growth rate of federal spending per beneficiary for Medicare and Medicaid.

Different paths for those four factors would affect the budget in various ways. For example, lower-than-projected labor force participation rates would diminish the size of the labor force and thereby reduce tax revenues. Faster growth in spending per beneficiary for Medicare and Medicaid would boost outlays for those two programs. Either of those changes would increase deficits and debt, which would lead to reduced output and higher interest rates—leading to macroeconomic feedback that would further worsen the budget outlook. By contrast, faster growth in total factor productivity (henceforth referred to in this chapter simply as productivity) or lower interest rates on federal debt held by the public would have the opposite effects on the budget. Those changes would reduce deficits and debt—in the former case, by increasing output and revenues, and in the latter case, by lowering the government's interest payments.

The projected budgetary outcomes under the alternative paths vary widely. In CBO's analysis, when only one factor at a time changes, projections of federal debt held by the public in 2046 range from 103 percent of gross domestic product (GDP) to 192 percent; under the extended baseline, federal debt as a share of GDP is projected to be 141 percent. Among the four factors, the simulated variation in labor force participation rates has much smaller effects on the budget over 30 years than the simulated variations in productivity, interest rates, and spending for Medicare and Medicaid. When all four factors change at once—but by only 60 percent as much as when they vary individually—projections of federal debt in 2046 range from 93 percent to 196 percent of GDP. Those projected levels of debt are all high by historical standards; compared to the peak reached in 1946, when federal debt amounted to 106 percent of GDP, the projections range from slightly less than that record high to nearly twice that amount. Even at the low end of that range, debt would be higher than it is now.

1. Total factor productivity is different from labor productivity, which is the amount of goods and services that can be produced per hour of labor.

The four factors listed above are not the only ones that could differ from what is projected in CBO's extended baseline and affect budgetary outcomes. For example, higher rates of fertility or greater immigration flows would mean an increase in the ratio of working-age adults to older adults—with increased revenues collected from workers more than offsetting the additional spending resulting from increases in the number of older people receiving benefits. Moreover, changes in earnings inequality could affect the budget relative to CBO's projections through revenues from individual income taxes, spending on means-tested programs, and so on. Similarly, decisions by states about how much they spend on Medicaid could increase or decrease federal spending relative to CBO's projections.

Other types of developments could also have significant effects on the budget that are not quantified in this analysis—for example, an economic depression, such as the one that occurred in the United States in the 1930s; unexpectedly large losses on federal credit or insurance programs, such as those involving mortgage guarantees; a catastrophe or major war; unexpectedly significant effects of climate change; or the development of a previously underused natural resource. Any of those occurrences could create conditions in the next 30 years that are substantially better or worse than those reflected in the historical data on which CBO's based its analysis. The analytic approach the agency used for this long-term analysis focuses on projecting average outcomes.

Policymakers could address the uncertainty associated with long-term budget projections in various ways. For instance, they might design policies that partly insulated the federal budget from some unanticipated events; however, those policies could have unwanted consequences, such as shifting risk to individuals. Another possibility is that policymakers might aim for a smaller amount of federal debt to provide a buffer against the budgetary impact of adverse events and allow for more flexibility in responding to unexpected crises in the future.

## Long-Term Budgetary Effects of Changes in Four Key Factors

Budgetary outcomes could differ from CBO's projections if values for the four factors mentioned above—labor force participation rates, the growth rate of productivity, interest rates on federal debt, or the growth of federal spending per beneficiary on Medicare and Medicaid—diverged from those underlying the extended baseline projections in this report. Unexpected changes in labor force participation rates would alter the size of the labor force, output, and tax revenues. Changes in productivity would lead to changes in economic output, which would affect both revenues and spending. Changes in the interest rates on federal debt would affect the amount of interest paid by the government. And changes in the growth rate of federal health care spending, one of the largest components of the budget, would have significant implications for overall federal spending.

For CBO's alternative projections, the variation in those four factors over time offers a guide (though an imperfect one) to the amount of uncertainty that surrounds projections of those individual factors over the next 30 years. History is not an indicator of all future uncertainty, however. For that reason, CBO also considered the effects of possible future developments on the ranges used in the alternative projections.

Furthermore, to better capture the overall uncertainty of the combined effects of those individual factors, CBO also constructed two projections in which all four factors simultaneously varied from their values under the extended baseline. In one of those cases, all of the factors varied in ways that increased the amount of federal debt; in the other, they varied in ways that reduced the amount of the debt.[2]

In CBO's extended baseline, which reflects the expected outcomes of those four factors, federal debt held by the public would equal 141 percent of GDP in 2046. Alternative projections of the factors would lead to the following outcomes:

2. Another approach to quantifying the uncertainty of budget projections would be to create a distribution of outcomes from a large number of simulations in which factors such as productivity growth, interest rates, and the rate of increase in health care costs varied around an expected outcome. CBO generally uses that approach in its reports on the financial outlook for the Social Security trust funds. See Congressional Budget Office, *CBO's 2015 Long-Term Projections for Social Security: Additional Information* (December 2015), www.cbo.gov/publication/51047, and *Quantifying Uncertainty in the Analysis of Long-Term Social Security Projections* (November 2005), www.cbo.gov/publication/17472. However, the analysis presented here focuses on uncertainty as it relates to the expected outcomes themselves, rather than variation around those outcomes. Determining the appropriate variation in expected outcomes and estimating the distribution of outcomes for the federal budget as a whole would require additional modeling tools that CBO has not yet developed.

- If the labor force participation rate was, on average, about 2 percentage points higher or lower over the 2017–2046 period than is projected in CBO's extended baseline, and was about 3.0 percentage points higher or lower in 2046, federal debt held by the public that year would be 137 percent of GDP (if participation was higher) or 144 percent (if participation was lower).

- If productivity grew 0.5 percentage points per year more quickly or more slowly than it does in CBO's extended baseline, federal debt held by the public in 2046 would be 112 percent of GDP (if productivity growth was faster) or 173 percent (if productivity growth was slower).

- If the average interest rate on government debt was 1.0 percentage point lower or higher than that in CBO's extended baseline, federal debt held by the public in 2046 would be 108 percent of GDP (if the rate was lower) or 188 percent (if the rate was higher).

- If spending per beneficiary for Medicare and Medicaid grew 1.0 percentage point per year more slowly or more quickly than it does in CBO's extended baseline, federal debt held by the public in 2046 would be 103 percent of GDP (if spending grew more slowly) or 192 percent (if spending grew more quickly).

- If all four factors deviated from their baseline values in ways that reduced deficits but did so by only 60 percent as much as in the cases specified above, federal debt held by the public in 2046 would be 93 percent of GDP; if all four factors deviated in ways that increased deficits but did so by only 60 percent as much as in the cases described above, federal debt held by the public would be 196 percent of GDP.

Those alternative projections incorporate macroeconomic feedback. For example, increased government borrowing would eventually reduce private investment in productive capital. The result would be a smaller stock of capital and lower output and income in the long term than would otherwise be the case. Lower income would reduce tax revenues. Federal noninterest spending would be lower if income was lower—although the effect would be smaller than that on revenues—because Social Security benefits are linked to earnings and because total spending on health care tends to vary with total income over the long term. CBO assumed that changes in income would not affect other noninterest spending. Therefore, budgetary feedback from increased government borrowing would lead to lower spending and still lower revenues, which would result in increased deficits and federal debt. Budgetary feedback from decreased government borrowing would work in the opposite direction.

### Labor Force Participation

The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are age 16 or older and either working or actively seeking work. That rate reflects people's decisions about the attractiveness of working or searching for work compared with such alternatives as attending school, caring for family members, or retiring. Key determinants include the demographic characteristics of the population and economic conditions. In CBO's extended baseline, labor force participation is projected to decline from about 63 percent in 2017 to about 58 percent in 2046.[3]

The average rate of labor force participation during the 30-year period from 1986 through 2015 was about 6 percentage points higher than it was from 1949 through 1978, the earliest period for which published data are available (see Figure 7-1). That increase was largely driven by long-term increases in women's labor force participation. The rate of participation for women climbed from 33 percent in 1949 to a peak of 60 percent in 1999 before slowly declining to 57 percent in 2015. The increase in women's labor force participation was partially offset by declines in men's rate of participation, which fell from 87 percent in 1948 to 69 percent in 2015.

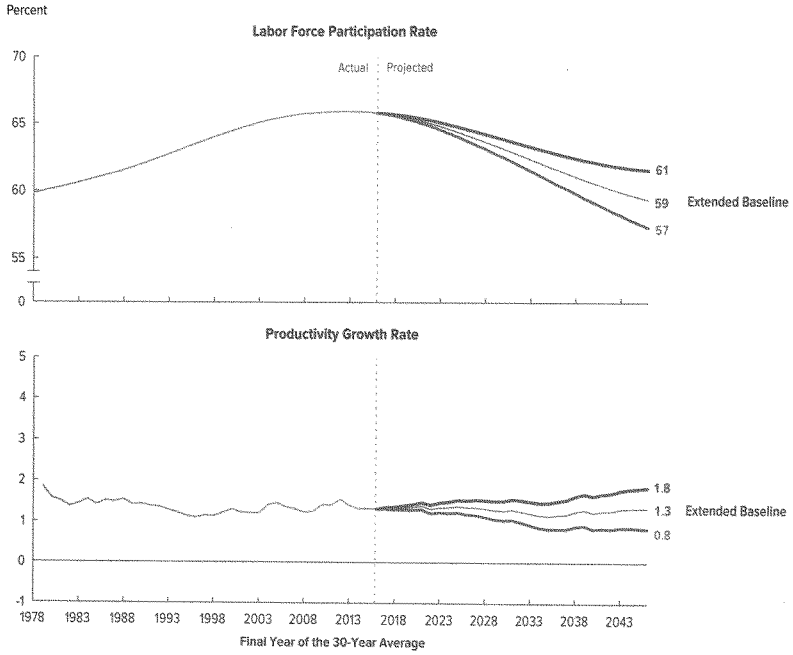
Variations in labor force participation rates affect the federal budget by changing output and income and by changing the interest rates the federal government pays on public debt.[4] For example, income from higher labor force participation increases tax revenues. With respect to interest rates, higher labor force participation increases the ratio of labor to capital—factories and computers, for example—and thereby makes capital more productive, which implies a higher rate of return on investment in private capital, all else being equal. According to widely

3. For more information on CBO's labor force projections, see Appendix A of this report and Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), Chapter 2, www.cbo.gov/publication/51129.

4. To simplify this uncertainty analysis, CBO did not project budgetary effects of changes in labor force participation rates on means-tested programs beyond the agency's estimates of the way potential GDP affects spending for such programs.

Figure 7-1.

**The 30-Year Averages CBO Used to Illustrate Uncertainty in Long-Term Budget Projections**




Sources: Congressional Budget Office; Bureau of Labor Statistics; Federal Reserve; Social Security Administration.

To illustrate some of the uncertainty associated with long-term budgetary outcomes, CBO constructed alternative projections that show what would happen to the budget if four underlying factors differed from the values that were used to construct the extended baseline. This figure shows the projected variation in those factors, which is based largely on the historical variation in the factors' 30-year averages and begins in 2017.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The 30-year average for a given year is the average of the data value for that year and the values for the preceding 29 years. For example, the 30-year average for productivity growth in 2015 is the average of the growth of productivity in years 1986 through 2015.

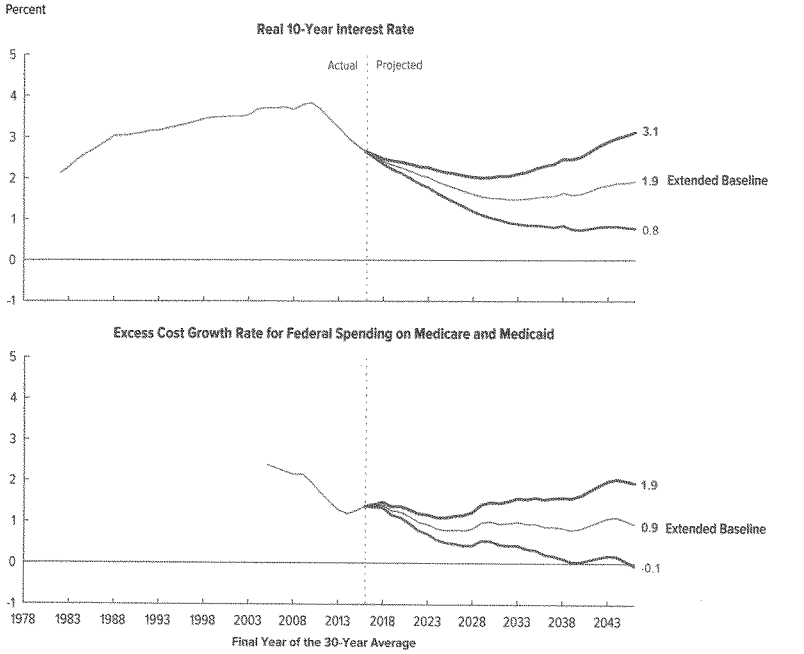
The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are age 16 or older and either working or actively seeking work.

Productivity growth is the growth of total factor productivity—that is, the growth of real (inflation-adjusted) output that is not explained by the growth of labor and capital.

Continued

Figure 7-1. Continued

The 30-Year Averages CBO Used to Illustrate Uncertainty in Long-Term Budget Projections




Excess cost growth refers to the extent to which the growth rate of nominal health care spending per person—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential gross domestic product per person. (Potential gross domestic product is the maximum sustainable output of the economy.)

The different periods shown for actual data reflect the availability of those data.

used economic models, if growth in labor force participation increases, that rate of return remains higher over time. Because the federal government competes with private borrowers for investors' money, higher returns from private investment should push up interest rates paid by the federal government.[5]

To assess the budgetary effects of labor force participation rates that differ from CBO's central estimates, the agency projected outcomes if the labor force participation rate grew or shrank each year for 30 years relative to CBO's extended baseline.[6] In CBO's baseline projection, the labor force participation rate is 58 percent in 2046. In the alternative projections, the labor force participation rate

5. For example, in the Solow-type growth model that CBO used for this analysis, if labor force participation rates in 2046 were 3 percentage points higher than projected in the extended baseline, the average interest rate on federal debt held by the public that year would be about 0.4 percentage points higher than the baseline value. For details of that model, see Congressional Budget Office, *CBO's Method for Estimating Potential Output: An Update* (August 2001), www.cbo.gov/publication/13250.

6. CBO's central estimates represent expected outcomes when key inputs to the analysis are at the midpoints of their ranges.

over the entire 2017–2046 period is, on average, about 2 percentage points higher or lower than in CBO's baseline, and it is about 3 percentage points higher or lower in 2046. The labor force participation rate could be that high or low for various reasons:

- People who were ages 16 to 24 in the midst of the 2007–2009 recession and during the slow recovery that followed have displayed historically low rates of labor force participation. Because it is uncertain how much those participation rates have been held down for temporary reasons (such as weakness in the labor market) or persistent ones (such as people over age 16 spending a greater proportion of time as full-time students), projections of their future labor force participation are particularly uncertain. If, as members of that group got older, they were to participate in the labor force at higher rates than CBO projects in its extended baseline, the overall rate of participation would rise above 58 percent, the level projected for 2046. Furthermore, it is uncertain whether labor force participation rates for that group foretell the participation rate for future generations. If, over the next 30 years, people turning age 16 increased their labor force participation relative to those who turned 16 over the past decade, the overall labor force participation rate would be higher than projected in CBO's extended baseline. Labor force participation would fall below CBO's projections if, in the future, the participation rate of people over age 16 decreased relative to the baseline as they got older or if they entered the labor force at lower rates than projected in CBO's baseline.

- The structure of the tax system under current law is projected to raise effective tax rates on earnings from labor and thus reduce the amount of labor that workers choose to supply. Those changes are mainly attributable to the following: the gradual shift of income into higher tax brackets, because income grows faster than prices; and the implementation of a new tax on certain employment-based health insurance plans with high premiums, which is scheduled to go into effect in 2020 and is projected to affect a growing number of people over time. Workers' responses to tax rates could be much stronger or weaker than CBO has projected.[7]

- Social and technological developments, such as changes in the roles of men and women in the rearing of children or the diffusion of a new medical technology that improves the health of the population, could significantly alter labor force participation rates in the future.

CBO estimated likely ranges for the first two of those contributing factors—examining high and low values for the participation rates of cohorts of young workers and high and low values of labor-supply responses to changes in tax rates—and considered effects of the third contributing factor, other potential factors, and their interactions. The resulting alternative projections for labor force participation are about 3 percentage points higher (or lower) in 2046. The alternative labor force projections would lead to the following alternative budget projections:

- If the labor force participation rate was 61 percent in 2046, the resulting higher GDP would lead to more revenues, higher interest rates, smaller budget deficits, and less federal debt. Federal debt held by the public would be 137 percent of GDP in 2046 rather than the 141 percent that CBO projects under the extended baseline (see Figure 7-2).

- If the labor force participation rate was 55 percent in 2046, the slower economic growth would result in larger budget deficits and more debt. That debt would be 144 percent of GDP in 2046.

### Productivity

Productivity is an important determinant of economic output. Its growth stems from a number of sources, such as the introduction and spread of new technology, increases in workers' education and skill levels, and the use of new processes that improve the efficiency of organizations. CBO estimates that the growth of productivity, which has averaged 1.5 percent per year since 1950, has accounted for more than 40 percent of the increase in real (inflation-adjusted) nonfarm business output over that time. Productivity is projected to increase, on average, by 1.3 percent per year in the coming decades in CBO's extended baseline.

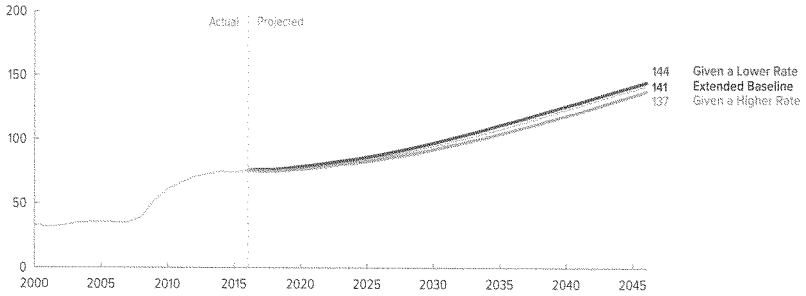
However, the growth rate of productivity has often varied for extended periods. Periods of rapid growth have generally resulted from major technological innovations. For example, innovations in four critical areas—electricity

7. For further discussion, see Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674; and Edward Harris and Shannon Mok, *How CBO Estimates the Effects of the Affordable Care Act on the Labor Market*, Working Paper 2015-09 (Congressional Budget Office, December 2015), www.cbo.gov/publication/51065.

Figure 7-2.

**Federal Debt Given Different Labor Force Participation Rates**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Federal debt refers to debt held by the public. Values are CBO's central estimates from ranges determined by alternative assessments of two factors: how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are age 16 or older and either working or actively seeking work.

The alternative projections of labor force participation rates begin in 2017. In 2046, they are about 3 percentage points higher and lower than they are in the extended baseline.

generation, internal combustion engines, chemicals, and telecommunications—triggered a surge in productivity in the 1920s and 1930s. Another surge occurred in the 1950s and 1960s, spurred by the electrification of homes and workplaces, suburbanization, completion of the nation's highway system, and production of consumer appliances. The latest surge in productivity—a more modest one—began in the 1990s and is attributed to innovations involving computers and other types of information technology.[8] Productivity growth has been relatively weak since the 2007–2009 recession, however, and it is expected to remain weak over the next few years.

A great deal of uncertainty surrounds the future growth rate of productivity. The nation could experience faster growth in productivity than is reflected in CBO's extended baseline, either steadily (as a result of ongoing gains from the integration of information technology into the economy, for example) or more suddenly (from a technological breakthrough, such as the development of a new source of energy). Conversely, the growth of productivity could be slower than is projected in CBO's extended baseline (if, for example, the rate of increase in workers' education levels declined or if technological innovation or the dispersion of previous technological innovations throughout the economy diminished more than expected).

Changes in the rate of productivity growth would affect the federal budget by changing output and income and also, in CBO's assessment, by changing the interest rates the federal government pays on public debt. Higher productivity would increase revenues because of greater output and income. Higher productivity, like greater labor force participation, also indicates that capital is more productive, which implies a higher rate of return from private capital investment, all else being equal. Because the federal government competes with private borrowers for investors' money, higher returns from private investment would push up interest rates paid by the federal government.

8. For further discussion, see Robert Shackleton, *Total Factor Productivity Growth in Historical Perspective*, Working Paper 2013-01 (Congressional Budget Office, March 2013), www.cbo.gov/publication/44002.

Although empirical estimates of the relationship between productivity and interest rates vary, the theoretical relationship is clear enough for CBO to incorporate an effect on interest rates into this analysis.[9]

CBO assessed average productivity growth over the 37 30-year periods that occurred between 1950 and 2015. Beginning with the 1950–1979 period and ending with the 1986–2015 period, average productivity growth varied by about 1 percentage point (see Figure 7-1 on page 78). CBO therefore projected economic and budgetary outcomes that would occur if productivity grew by either 0.8 percent or 1.8 percent per year over the next 30 years—that is, 0.5 percentage points more slowly or more quickly than the 1.3 percent that is incorporated in the extended baseline.[10]

Those alternative projections for productivity growth would lead to the following alternative budget projections:

- If productivity grew by 1.8 percent annually, 0.5 percentage points more quickly than in the extended baseline, then the greater GDP would result in more revenues, higher interest rates, smaller budget deficits, and less federal debt as a share of GDP. Federal debt held by the public would be 112 percent of GDP in 2046 rather than the 141 percent that CBO projects in the extended baseline (see Figure 7-3).

- If productivity grew by 0.8 percent annually, 0.5 percentage points more slowly than in the extended baseline, the slower economic growth would result in larger budget deficits and more debt as a share of GDP. That debt would be 173 percent of GDP in 2046.

Faster or slower productivity growth could also affect the budget in ways that are not accounted for in this analysis—for example, by changing the shares of the nation's income received by workers (in the form of wages and salaries, for instance) and by the owners of productive capital (in the form of corporate profits, for example). In recent years, technological change appears to have affected productivity in ways that put downward pressure on labor's share of income (for example, by expanding options for using capital in place of labor), a trend that some economists believe will be long-lasting.[11]

### Interest Rates on Federal Debt

Changes in interest rates on federal debt held by the public—or federal borrowing rates—have direct effects on the budget. Federal borrowing rates are currently at historic lows, but CBO projects that they will rise in the coming years, from an average of 1.7 percent in 2015 to 4.4 percent in 2046. As a result of those projected increases and the resulting increase in deficits, interest payments on federal debt, which are currently a little over 1 percent of GDP, are projected to grow to about 6 percent of GDP by 2046. As federal debt grows to 141 percent of GDP in 2046, changes in the federal borrowing rate will have larger impacts on the federal budget.

However, given how much interest rates on federal debt have varied in the past, projections of those rates involve a great deal of uncertainty. CBO estimates that in real terms (that is, with adjustments to exclude the effects of inflation), the interest rate on 10-year Treasury notes averaged about 3 percent in the 1960s, about 1 percent in the 1970s, about 6 percent in the 1980s, about 4 percent in the 1990s, about 2 percent between 2000 and 2007, and about 1 percent over the past eight years.[12]

Many factors affect the real federal borrowing rate. Some of them reflect economic growth and investment flows; some relate to the current amount of federal borrowing and debt; and several others depend on financial conditions. Economic factors include the rate of growth of the

9. For example, in the Solow-type growth model that CBO used for this analysis, if productivity grew 0.5 percentage points more quickly than it is projected to grow in the extended baseline, the average interest rate on federal debt held by the public in 2046 would be about 0.7 percentage points higher than the extended baseline value. For details of that model, see Congressional Budget Office, *CBO's Method for Estimating Potential Output: An Update* (August 2001), www.cbo.gov/publication/13250.

10. For another approach to measuring uncertainty in long-run projections of productivity growth, see Ulrich K. Müller and Mark W. Watson, "Measuring Uncertainty About Long-Run Predictions," *Review of Economic Studies* (March 2016), http://dx.doi.org/10.1093/restud/rdw003. Müller and Watson's approach yields a range of uncertainty around productivity growth that is similar in size to the range that CBO calculated.

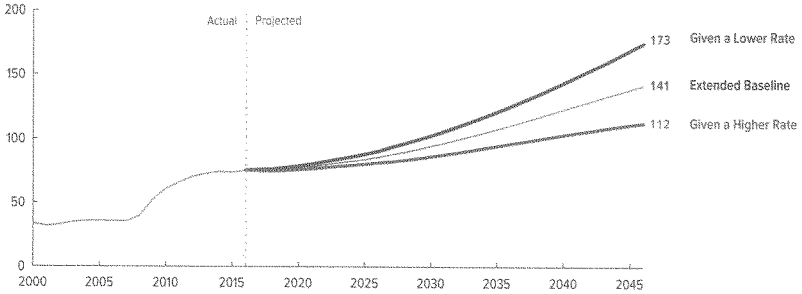
11. For further discussion, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433.

12. To calculate real interest rates, actual rates were adjusted using changes in the consumer price index. Past values of the consumer price index were adjusted to account for changes over time in the way that the index measures inflation. See Bureau of Labor Statistics, "CPI Research Series Using Current Methods (CPI-U-RS)" (April 13, 2016), www.bls.gov/cpi/cpiurs.htm.

Figure 7-3.

**Federal Debt Given Different Productivity Growth Rates**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Federal debt refers to debt held by the public. Values are CBO's central estimates from ranges determined by alternative assessments of two factors: how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

Productivity growth is the growth of total factor productivity—that is, the growth of real (inflation-adjusted) output that is not explained by the growth of labor and capital.

The alternative projections of productivity growth rates begin in 2017. Through 2046, the higher productivity growth rate is 0.5 percentage points higher, and the lower productivity growth rate is 0.5 percentage points lower, than the annual rate of 1.3 percent used for each year in the extended baseline.

labor force, the rate of growth of productivity, private saving, and the amount of inflows of capital from foreign investors (see Appendix A). Federal borrowing rates also depend on the size of deficits and the amount and duration of federal debt. Finally, the federal borrowing rate is affected by financial factors such as changes in investors' appetite for risk, which can vary with changes in portfolio preferences among U.S. and foreign investors, the perception of the underlying risk of private securities relative to federal debt, the response of financial institutions to regulations that require the holding of low-risk assets, and the liquidity of federal government debt relative to that of private securities.

For this analysis, CBO focused on the effects of changes to the federal borrowing rate caused by unexpected changes in financial factors. Changes in interest costs would, in turn, lead to changes in the deficit, which would affect national saving and interest rates and lead to changes in output. By design, changes to the federal borrowing rate that are attributable to unexpected changes in financial factors are not caused by changes in economic conditions or changes in the federal budget.[13] By contrast, in CBO's uncertainty analyses of productivity and labor force participation, federal borrowing rates change in response to economic developments.

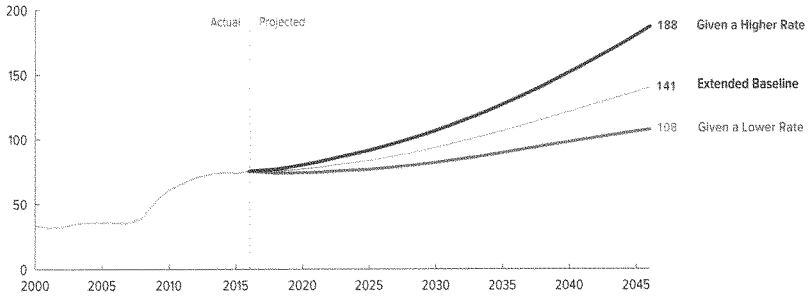
Although there are many ways to estimate the extent to which unexplained financial factors contribute to federal borrowing rates, one approach suggests those factors accounted for approximately 1.0 percentage point of the variation over 30-year periods between 1949 and 2015. Other specifications result in moderately wider or narrower ranges. In addition, the recent large and unexpected

13. Unexpected changes in financial factors are the historical variations in the federal borrowing rate that are not explained by economic and budgetary factors. CBO estimates the historical variations in the federal borrowing rate that are explained both directly and indirectly by economic and budgetary factors; the remaining unexplained historical variation is the contribution of unexpected changes in financial factors.

Figure 7-4.

**Federal Debt Given Different Federal Borrowing Rates**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Federal debt refers to debt held by the public. Values are CBO's central estimates from ranges determined by alternative assessments of two factors: how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

The federal borrowing rate is the interest rate on federal debt. The alternative projections of federal borrowing rates begin in 2017. Through 2046, the higher borrowing rate is 1.0 percentage point higher, and the lower borrowing rate is 1.0 percentage point lower, than the rate used for each year in the extended baseline. The borrowing rate is not the same measure as the interest rate on 10-year Treasury notes that is shown in Figure 7-1.

changes in the 10-year real interest rates on Treasury notes point to significant uncertainty around CBO's projection of the federal borrowing rate. On the basis of that evidence, CBO constructed its range of uncertainty around federal borrowing rates by raising and lowering the federal borrowing rate by 1.0 percentage point, before accounting for macroeconomic feedback. Incorporating macroeconomic feedback widens the range of uncertainty around federal borrowing rates. For example, if unexpected changes in financial factors caused the average federal borrowing rate over the next 30 years to increase or decrease by 1.0 percentage point, after accounting for macroeconomic feedback, the average 10-year real interest rate over the next 30 years ranges from 1.2 percent to 3.5 percent relative to a projection of 2.3 percent under the extended baseline (see Figure 7-1 on page 78).

Those alternative projections for the federal borrowing rate on federal debt held by the public would lead to the following alternative budget projections:

- If unexpected changes in financial factors caused the average federal borrowing rate to be 1.0 percentage point lower before accounting for macroeconomic feedback, then net interest would equal 3.1 percent of GDP by 2046 instead of the 5.8 percent projected in the extended baseline.[14] Federal debt held by the public would be 108 percent of GDP in 2046 rather than the 141 percent that CBO projected in that baseline (see Figure 7-4).

- If unexpected changes in financial factors caused the average borrowing rate to be 1.0 percentage point higher before accounting for macroeconomic feedback, then interest would be 10.3 percent of GDP in 2046, CBO projects, and federal debt held by the public would reach 188 percent of GDP.

14. The estimated direct effects on budget projections of changes in the government's borrowing rates do not incorporate any changes in remittances by the Federal Reserve or in the relative amounts of different types of taxable income (for example, profits and interest income). Such changes would have additional budgetary implications.

### Federal Spending on Medicare and Medicaid

The federal government pays for health care through Medicare, Medicaid, and other programs; through subsidies for insurance purchased through the health insurance marketplaces established under the Affordable Care Act; and through tax preferences, especially the exclusion for employment-based health insurance.[15] In CBO's extended baseline, federal spending on health care per beneficiary increases more slowly in the future than it has, on average, in recent decades, although it still outpaces the growth of potential (that is, maximum sustainable) output per capita. Because substantial uncertainty surrounds the future growth of health care costs, the effects of that growth on the federal budget are similarly uncertain. Consequently, CBO assesses those effects by varying the growth rate of costs in the two largest components of federal spending on health care, Medicare and Medicaid.

Many factors will affect Medicare and Medicaid spending per beneficiary in the long term (for further discussion, see Chapter 3). Perhaps the most important factor is the extent to which advances in health care technology will raise or lower costs. New and less expensive medical procedures or treatments could prove effective in helping patients, which could lower costs. But other beneficial procedures and treatments might be more expensive; and even services that are relatively inexpensive could make spending rise quickly if growing numbers of patients used them.[16] In particular, technologies that work to extend the life of Medicare recipients tend ultimately to increase expenditures for the program over time. Other factors that could affect health care costs are changes in the structure of payment systems and innovations in the delivery of health care.

In addition, Medicare and Medicaid spending will be affected by the health of the population. Outlays for Medicare and Medicaid depend in part on the prevalence among beneficiaries of certain medical conditions—for example, cardiovascular and pulmonary disease, diabetes, arthritis, and depression. The prevalence of such conditions could evolve in unexpected ways for various reasons, including changes in behavior (for example, rates of smoking, amounts of physical activity, or dietary patterns), new treatments for various illnesses, new medical interventions that reduce the occurrence or severity of certain conditions or diseases, and the emergence of epidemics.

The measure that CBO examined for this analysis of uncertainty was excess cost growth, which is the growth rate of health care spending per person after removing the effects of demographic changes—most notably, changes in the age distribution of the population—relative to the growth rate of potential GDP per person.[17] Starting with the 1976–2005 period and ending with the 1986–2015 period, average excess cost growth for Medicare and Medicaid over various 30-year periods declined by about 1.0 percentage point, both because of changes in laws and other factors (see Figure 7-1 on page 78). In assessing possible values for the average rate of excess cost growth over the next 30 years, CBO considered that, if current laws remained unchanged, the 30-year average rate could continue to decline (although probably not as quickly as the historical decline that included changes in laws). Conversely, it could revert toward the higher rate observed in the past. CBO also drew upon an alternative approach to measuring uncertainty that uses information about trends and cycles in excess cost growth over time; it produced a potential range for excess cost growth through 2046 that was larger than the range of historical variation.[18] Using those approaches to help determine the extent of the range, CBO analyzed the effects of rates of excess cost growth for Medicare and Medicaid that were 1.0 percentage point above and below the rate of growth for each year in the extended baseline. (CBO focused on Medicare and Medicaid because the projected size of those programs means that variations in their rates of growth would have particularly large effects on the federal budget; for additional discussion of the extended baseline projections for those programs, see Chapter 3.)

Those alternative projections for the growth of health care spending would lead to the following alternative budget projections:

15. Most payments that employers and employees make for health insurance coverage are exempt from income and payroll taxes. For more information, see Congressional Budget Office, *Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2016 to 2026* (March 2016), www.cbo.gov/publication/51385.

16. See Congressional Budget Office, *Technological Change and the Growth of Health Care Spending* (January 2008), www.cbo.gov/publication/41665.

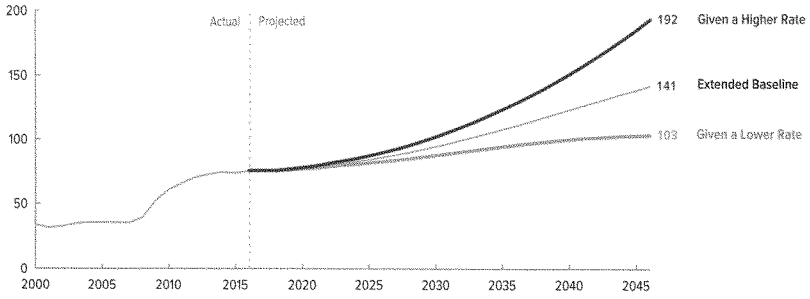
17. The definition and calculation of excess cost growth are discussed in more detail in Chapter 3.

18. See Ulrich K. Müller and Mark W. Watson, "Measuring Uncertainty About Long-Run Predictions," *Review of Economic Studies* (March 2016), http://dx.doi.org/10.1093/restud/rdw003.

Figure 7-5.

**Federal Debt Given Different Rates of Excess Cost Growth for Federal Spending on Medicare and Medicaid**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Federal debt refers to debt held by the public. Values are CBO's central estimates from ranges determined by alternative assessments of two factors: how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

Excess cost growth refers to the extent to which the growth rate of nominal health care spending per person—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential gross domestic product per person. (Potential gross domestic product is the maximum sustainable output of the economy.)

The alternative projections of rates of excess cost growth begin in 2017. Through 2046, the higher rate of excess cost growth is 1.0 percentage point higher, and the lower rate is 1.0 percentage point lower, than the rate used for each year in the extended baseline.

- If Medicare and Medicaid spending per beneficiary rose 1.0 percentage point per year more slowly than in the extended baseline, federal debt held by the public would be 103 percent of GDP in 2046 rather than the 141 percent that CBO projects in the extended baseline (see Figure 7-5).

- If Medicare and Medicaid spending per beneficiary rose 1.0 percentage point per year more quickly than in the extended baseline, federal debt held by the public would be 192 percent of GDP in 2046.

### Multiple Factors

The previous cases illustrated what would happen to the federal budget if a single factor differed from the projections that CBO used in the extended baseline. Undoubtedly, outcomes for multiple factors would differ from CBO's projections. Estimating the budgetary consequences of such a circumstance is more complicated than simply adding together the outcomes of the individual cases. For example, higher-than-projected health care costs would have a larger effect on the budget if interest rates on federal debt were also higher than CBO projects—because the government would have to pay more interest on debt that resulted from the additional health care spending.

The four factors could affect each other directly—for example, higher productivity would lead to higher wages and higher labor force participation rates—or they could be jointly affected by other changes to the economy. To account for such interactions among the key variables, CBO examined two alternative projections in which they were assumed to change together. The agency used only part of the full range for each of the four factors because the chances of federal debt being above or below the estimates when all four factors are at the high and low ends of their ranges is much smaller than when each individual factor is at the high and low end of its range. Specifically, the agency analyzed illustrative cases in which all four factors varied from the baseline by 60 percent of their individual ranges. For example, in the cases discussed

above, the range for the rate of productivity growth was 1 percentage point, yielding growth rates that were 0.5 percentage points higher and lower than the values in the extended baseline; but for the combined projections, the range for the rate of productivity growth is 0.6 percentage points, yielding growth rates that are 0.3 percentage points higher or lower than the values underlying the extended baseline.

Although the range for each of the four key factors when considered jointly is 60 percent of the range when they are considered individually, the resulting effects on federal debt as a share of GDP, relative to the extended baseline, turn out to be less than 60 percent of the sum of the estimated effects for the individual factors because of interactions among the factors. For example, simultaneous changes in rates of productivity growth and labor force participation—which individually affect the federal borrowing rate—interact to create an effect on the interest rate that differs from the sum of the individual factors' effects on interest rates. A decrease in productivity lowers the return on capital, as does a drop in the labor force participation rate. Both together lower the return on capital even more than they would if each factor was considered individually and added together. The reduction in the return on capital is reflected in a reduction in federal borrowing rates. That reduction in borrowing rates leads to lower net interest costs than would result from adding together the reductions in interest costs from the four analyses that vary one factor at a time.

Varying the four factors simultaneously so that all four collectively increase or decrease the deficit leads to the following budget projections:

- If labor force participation was about 2 percentage points higher in 2046, productivity grew 0.3 percentage points per year more quickly, unexplained financial factors lowered the federal borrowing rate by 0.6 percentage points, and federal costs per beneficiary for Medicare and Medicaid grew by about 0.6 percentage points per year more slowly than under the extended baseline, federal debt held by the public would be 93 percent of GDP in 2046 rather than the 141 percent that CBO projects under the extended baseline (see Figure 7-6).

- If labor force participation was about 2 percentage points lower in 2046, productivity grew 0.3 percentage points per year more slowly, unexplained financial factors increased the federal borrowing rate by 0.6 percentage points, and federal costs per beneficiary for Medicare and Medicaid grew by about 0.6 percentage points per year more quickly than under the extended baseline, federal debt held by the public would be 196 percent of GDP in 2046.

## Uncertainty Arising From Other Inputs to CBO's Projections

CBO's long-term budget estimates depend on projections of numerous variables in addition to those analyzed above. Although the factors discussed in the previous section are four of the more important ones, they are intended to provide illustrative examples, not to be exhaustive. Every variable has some uncertainty associated with it. For instance, demographics, earnings inequality, and decisions by states about Medicaid are also important, but CBO has not quantified the potential effects on the budget of uncertainty involving all of those factors.

### Changes in Demographics

Demographic factors have significant effects on economic and budgetary outcomes. For instance, GDP depends to a large degree on the size of the labor force, which is related to the number of adults between the ages of 20 and 64, and federal outlays for Medicare, Medicaid, and Social Security are closely linked to the number of people who are at least 65 years old. Higher rates of fertility or greater immigration flows would generally cause federal spending to decrease relative to GDP because they would increase the ratio of adults ages 20 to 64 to older adults (which would increase GDP). Faster improvement in mortality rates would generally cause federal spending to increase relative to GDP because people of all ages would be expected to live longer, which would increase the number of people who received benefits from Social Security, Medicare, Medicaid, and certain other mandatory spending programs and thereby increase federal outlays for those programs.[19]

### Changes in Earnings Inequality

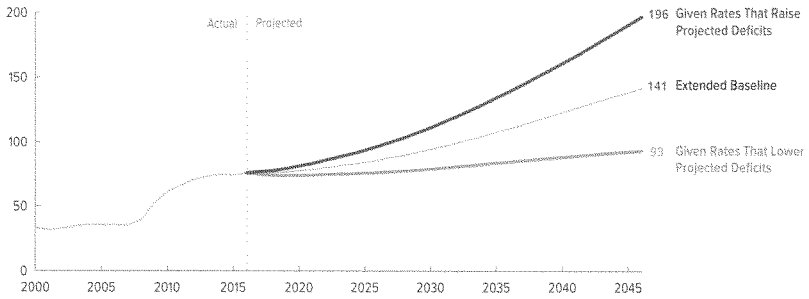
CBO expects that—as has occurred over the past several decades—workers with high earnings will experience faster earnings growth during the next 10 years than will workers with low earnings. Thereafter, CBO expects, the earnings of all workers will grow at the same rate. That is, CBO expects earnings inequality to increase over the next

19. For a review of the effects of alternative estimates of future mortality rates on long-term budget projections, see Congressional Budget Office, *The 2015 Long Term Budget Outlook* (June 2015), Chapter 7, www.cbo.gov/publication/50250.

Figure 7-6.

**Federal Debt Given Different Labor Force Participation Rates, Productivity Growth Rates, Federal Borrowing Rates, and Rates of Excess Cost Growth for Federal Spending on Medicare and Medicaid**

Percentage of Gross Domestic Product




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Federal debt refers to debt held by the public. Values are CBO's central estimates from ranges determined by alternative assessments of two factors: how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are age 16 or older and either working or actively seeking work.

Productivity growth is the growth of total factor productivity—that is, the growth of real (inflation-adjusted) output that is not explained by the growth of labor and capital.

Excess cost growth refers to the extent to which the growth rate of nominal health care spending per person—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential gross domestic product per person. (Potential gross domestic product is the maximum sustainable output of the economy.)

For this figure, CBO used values for the four factors whose deviation from the extended baseline was about 60 percent as large as the deviation used for the individual cases shown in Figures 7-2 to 7-5. The alternative projections of the four factors begin in 2017.

10 years and to remain near that level thereafter. The significant uncertainty regarding that projection is a source of uncertainty regarding the budget projections in CBO's extended baseline. For example, faster-than-projected earnings growth for those with relatively high earnings and lower-than-projected earnings growth for those with relatively low earnings would lead to higher-than-projected tax revenues and higher-than-projected spending on means-tested transfer programs.

In assessing that uncertainty, CBO considered the way that many factors contributed to the evolution of earnings inequality over the past several decades. Determining the contribution of each of those factors is difficult, and studies of the issue have not reached consensus about the relative importance of each. Among the economic factors contributing to changes in earnings inequality were increases in the employment of women, the movement of some jobs to other countries, and increases in the immigration of less-skilled workers. In addition, changes in technology that increased the productivity of higher-skilled workers and the slowing growth of the educational attainment of workers have been factors. Changes in federal policy probably also contributed to changes in earnings inequality. For instance, changes in means-tested programs and tax credits, which provide cash payments

or assistance in obtaining health care, food, housing, or education to people with relatively low income or few assets, may have affected the incentives of less-skilled people to work. A number of other factors have also had an impact on labor markets and earnings inequality: The federal minimum wage, after adjusting for changes in prices, has not increased substantially over the past several decades; rates of incarceration have increased; the number of workers in unions has declined; the size and structure of firms has changed; and the share of workers in the manufacturing sector has declined as the share of workers in the service sector has increased.

Many of the factors discussed above will continue to affect changes in the distribution of earnings, although some will be less relevant in the future. For instance, although increases in the employment of women were a factor in the changing distribution of earnings over the past several decades, those increases ended in about 2000 and are no longer contributing factors. In addition, the speed with which technology increased the productivity of more highly skilled workers appears to have slowed in recent decades, even as the growth in educational attainment has slowed.

Some other factors will be more relevant. For instance, changes in the size and structure of industries and firms will probably continue to affect the earnings distribution in the future. In CBO's projections, the supply of more-educated workers increases more quickly than the supply of less-educated ones, which could cause the premium paid to more-educated workers to rise more slowly than it has in the past or to stop rising altogether. That process would tend to slow the growth of earnings for high earners and possibly slow the growth of overall earnings inequality in the future.

In the absence of compelling evidence about which factors have contributed the most to rising inequality and how those factors would affect inequality in the future, that disparity in earnings is projected to continue to increase for the first decade of the forecast period, but not thereafter, in CBO's estimation. CBO continues to assess the sources of earnings inequality and their implications for the federal budget.

### Decisions by States About Medicaid

State governments have flexibility in administering their Medicaid programs, and the decisions they make about eligibility, benefits, and payments to providers affect the federal budget because the federal government pays a large share of Medicaid's costs. One source of uncertainty is whether states will make decisions that increase or decrease spending by providing coverage to more adults, decreasing covered benefits, or changing payments to providers. Decisions by states could significantly decrease or increase federal expenditures for Medicaid relative to the amounts in CBO's projections.

## Potential Developments in the Economy and Their Effects on the Budget

The sources of uncertainty discussed above are not the only ones associated with long-term budget projections. They do not account for other plausible but unpredictable developments that could increase or decrease federal debt relative to CBO's projections. Such possible developments could include a severe economic depression; unexpectedly large losses on federal financial obligations; unexpectedly significant effects of climate change; catastrophes, such as a major natural disaster or world war; or the development of natural resources.

### A Severe Economic Downturn

In general, when economic output rises or falls, the federal budget is automatically affected. For example, economic downturns can reduce revenues significantly and raise some outlays, such as those for unemployment insurance and nutrition assistance.[20] In addition, downturns have historically prompted policymakers to enact legislation that further reduces revenues and increases federal spending—to help people suffering from the weak economy, to bolster the financial condition of state and local governments, and to stimulate additional economic activity and employment. The budgetary effects of the recent recession were particularly large: Federal debt increased from 35 percent of GDP at the end of 2007 to 70 percent at the end of 2012, in large part because of the recession and weak recovery and the policy responses enacted to counter those developments.

The long-term projections of output and unemployment in this report reflect economic trends from the end of World War II to the present, a period that included several

20. See Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (January 2015), Appendix D, www.cbo.gov/publication/49892.

economic downturns that were not fully offset by upturns of similar magnitude.[21] However, the projections do not account for the possibility of a severe economic downturn like the Great Depression of the 1930s. Such events are rare; for that reason and others, their magnitude and timing cannot be readily predicted. If such an event occurred in the next 30 years, federal debt would probably be substantially greater than is projected in CBO's extended baseline.

### Losses on Federal Insurance or Credit Programs

The federal government supports a variety of private activities through federal insurance and credit programs that provide loans and loan guarantees.[22] CBO includes the expected losses from those credit and insurance programs in its baseline projections. Significantly greater losses could result from certain unexpected events, such as a major disruption in the financial system or a deep slump in the economy. Alternatively, long periods of financial and economic stability could lead to smaller losses.

Federal insurance and credit programs generate losses when the support provided by the federal government exceeds the money taken in by the programs through fees, loan repayments, interest payments, sales of assets, wage garnishment, and other means. For example, in the wake of the recent housing crisis, widespread defaults on guaranteed mortgages led to substantial outlays by the federal government. Widespread defaults on student loans or the bankruptcy of numerous companies with underfunded pension plans could lead to analogous costs for the federal government in the future.[23] Conversely, long periods of particularly strong economic growth could allow federal insurance and credit programs to collect higher-than-projected repayments and cover lower-than-projected expenses.

Moreover, significant implicit liabilities, apart from the liabilities created by official government programs, could affect the federal government. In the event of a financial crisis, for example, federal policymakers might decide to provide monetary support to the financial system, as they did during the recent financial crisis. Such support could increase federal outlays above the amounts projected in the extended baseline.

### Catastrophes or Wars

The federal government also faces implicit obligations in the case of catastrophes and can spend large sums in fighting a major war. Small-scale natural and manmade disasters occur fairly often in the United States; they may seriously damage local communities and economies, but they have rarely had significant, lasting impacts on the national economy. By contrast, a catastrophe could affect budgetary outcomes by reducing economic growth over a number of years, leading to substantial increases in federal spending. For example, the nation could experience a massive earthquake, a pandemic, an asteroid strike, a geomagnetic storm from a large solar flare, or a nuclear meltdown or attack that rendered a significant part of the country uninhabitable. Participation in a major war could also have significant economic and budgetary impacts: The ratio of federal debt held by the public to GDP rose by 60 percentage points during World War II, for instance. Because such events are extremely rare, it is very difficult to estimate the probability of their future occurrence and their possible effects on the budget.

### Climate Change

Substantial uncertainty surrounds any projection that attempts to account for the impact of climate change on the economy or on the budget. Many estimates—based

21. Since the end of World War II, the unemployment rate has been about one-quarter of one percentage point higher, on average, than CBO's estimate of the natural rate of unemployment (the rate arising from all sources except fluctuations in aggregate demand). That difference implies that periods of significant economic weakness (such as the 2007–2009 recession and its aftermath) have pushed the unemployment rate above CBO's estimate of the natural rate more than periods of significant economic strength have pushed it below that estimate. Consistent with that finding is CBO's projection that the unemployment rate in the long term will be 5.3 percent, which is about one-quarter of one percentage point higher than CBO's estimate of the natural rate of unemployment in the long term. For further discussion, see Appendix A.

22. Federal insurance programs provide coverage for deposits at financial institutions (through the Federal Deposit Insurance Corporation), for workers' pensions (through the Pension Benefit Guaranty Corporation), and for property against damage by floods (through the National Flood Insurance Program), among other things. The largest federal credit programs provide mortgage loan guarantees (through the Federal Housing Administration, Fannie Mae, and Freddie Mac); student loans; and federally backed loans to businesses (through the Small Business Administration, for example). There are a number of smaller programs, including the loan guarantees provided by the Department of Energy and the terrorism risk insurance program administered by the Treasury.

23. For more discussion, see James D. Hamilton, *Off-Balance-Sheet Federal Liabilities*, Working Paper 19253 (National Bureau of Economic Research, July 2013), www.nber.org/papers/w19253.

on a range of scenarios about the extent of climate change in the future—suggest that such effects on the nation's economic output, and hence on federal tax revenues, will probably be small over the period covered by CBO's long-term projections and larger, but still modest, in later years.[24] Even under scenarios in which significant climate change is assumed, the projected long-term effects on GDP would tend to be modest relative to underlying economic growth for two primary reasons. First, only a small share of the U.S. economy is directly affected by changes in climate; the largest effects would probably occur in the agricultural sector, which currently represents about 1 percent of total U.S. output. Second, some activities within the agricultural sector—crop production in the northern United States, for example—could experience gains because of climate change. In any event, some of the effects of climate change (such as the loss of biodiversity) neither directly relate to measured economic output nor affect tax revenues.

The uncertainty surrounding such projections arises from several sources: the unpredictability of global economic activity and technology development, both of which affect the amount of emissions in the future; limitations in current data; and the imperfect understanding of physical processes and of many aspects of the interacting components (land, air, water, ice, and all forms of life) that make up the Earth's climate system. CBO continues to monitor research on the effects of climate change on the U.S. economy, to consider how those effects might alter the federal budget outlook and to evaluate federal policies that could lead to lower emissions or mitigate damage from changes in the climate.

For those reasons, CBO's extended baseline does not explicitly incorporate the effects of climate change. It implicitly includes some small effects by reflecting historical spending on such programs as federal crop insurance, federal flood insurance, and the Federal Emergency Management Agency's disaster relief program.[25] Aside from those implicit changes in federal outlays, the extended baseline does not incorporate any budgetary effect that climate change might have; it does not, for example, account for the effect on federal tax revenues that climate change could have if it affected the nation's economic output.

Although CBO has not undertaken a full analysis of the budgetary costs stemming from climate change, it has recently analyzed the potential costs of future hurricane damage caused by climate change and coastal development.[26] Three factors that influence the rate of growth of future hurricane damage are sea levels, the frequency of severe hurricanes, and the amount of development in coastal areas (because the damage caused by hurricanes will depend, in part, on the amount of people and property in harm's way). All told, CBO projects that the increase in the amount of hurricane damage attributable to coastal development and climate change will probably be less than 0.05 percent of GDP in the 2040s. The federal expenditures projected to result from those economic effects would not significantly affect the budget categories in which hurricane-related spending falls.

Although CBO's baseline projections—which incorporate the assumption that current law would generally remain in place—do not capture possible changes in law, changes related to concerns about the effects of climate change could affect the budget if they were to occur. In the future, if weather-related disasters increase in frequency and magnitude, lawmakers could respond by increasing funding above the amounts in CBO's projections. For example, increased damage from storm surges might lead the Congress to pass additional emergency supplemental appropriations for disaster relief or to approve legislation providing funding to protect infrastructure that is vulnerable to rising sea levels. Or lawmakers could amend existing laws to reduce federal spending on weather-related disasters. For instance, the Congress might decide to alter flood insurance or crop insurance programs in a way that provides insured parties with a greater incentive to avoid potential damage.

24. Congressional Budget Office, *Potential Impacts of Climate Change in the United States* (May 2009), www.cbo.gov/publication/41180.

25. Some of the programs most affected by weather-related disasters—such as federal crop insurance and flood insurance—fall into the category of other mandatory spending in CBO's long-term projections. In CBO's extended baseline, spending in that category (apart from outlays for refundable tax credits) is projected to continue to decline as a share of GDP after the 10-year baseline projection period. That decline is projected to be at roughly the same rate as that projected for the last 5 years of the baseline. Other programs affected by weather-related disasters—such as the Federal Emergency Management Agency's disaster relief program—are discretionary; spending for those programs is projected to remain roughly constant as a share of GDP in the years following the baseline projection period.

26. Congressional Budget Office, *Potential Increases in Hurricane Damage in the United States: Implications for the Federal Budget* (June 2016), www.cbo.gov/publication/51518.

### Natural Resources

The future discovery and development of productive natural resources may cause federal receipts to increase. For example, recent advances in combining two drilling techniques, hydraulic fracturing and horizontal drilling, have allowed access to large deposits of shale resources—that is, crude oil and natural gas trapped in shale and certain other dense rock formations. Virtually nonexistent a decade ago, the development of shale resources has boomed in the United States in recent years, affecting two kinds of federal receipts—federal tax revenues and payments to the government by private developers of federally owned resources. By boosting GDP, shale development has increased tax receipts. Because some of the shale resources being developed are federally owned, developers must make payments to the federal government; however, most of the nation's shale resources are not federally owned, so those payments do not increase federal receipts by a significant amount.[27] Advances in the development of other resources might also contribute to federal receipts by bolstering the economy and making federally owned resources more valuable.

## Implications of Uncertainty for the Design of Fiscal Policy

Policymakers could take uncertainty into account in various ways when making fiscal policy choices.[28] For example, they might decide to design policies that reduced the budgetary implications of certain unexpected events. Policymakers might also decide to provide a buffer against events with negative budgetary implications by aiming for lower debt than they would if such uncertainty did not exist.

Whether or not the federal budget directly bears the risk of uncertain outcomes, all risk is ultimately distributed among individuals—as taxpayers, as beneficiaries of federal programs, or as both. If federal spending for certain programs turned out to be higher than projected, the additional imbalance could be offset only through higher revenues or lower spending for other programs or activities at some point in the future. If the additional imbalance was not offset, then deficits would be larger, resulting in lower future income. Conversely, if spending turned out to be lower or revenues greater than projected, then an opportunity would exist to lower taxes or boost spending; it would also be possible to reduce future deficits, resulting in higher income. Which income groups or generations benefited the most—or bore the largest burden—from unexpected budgetary developments would depend on the policies that lawmakers enacted as a result.

### Reducing the Effects of Unexpected Events on the Federal Budget

Fiscal policy cannot eliminate the risk factors that create uncertainty about budgetary outcomes, but it can reduce the budgetary implications of those factors. However, reducing budgetary uncertainty for the federal government could have unwanted consequences, such as shifting risk to individuals. Under current law, for example, growth in Medicare and Medicaid outlays per beneficiary depends in part on the growth of per capita health care costs. Some proposals would instead link growth in federal outlays per beneficiary to measures of overall economic growth or general price inflation.[29] Such a change could affect national spending for health care, the federal budget, individuals' costs, and the budgets of state and local governments. It might greatly reduce uncertainty about future federal outlays for Medicare and Medicaid, but it might also greatly increase uncertainty about the future costs borne by the programs' beneficiaries and by state and local governments.[30]

Similarly, policymakers could reduce the budgetary implications of uncertainty about future life expectancy by indexing the eligibility age for programs such as Social Security or Medicare to average life spans. Under current law, if longevity increased more than expected, outlays for federal health care and retirement programs would exceed projections. If policies were changed so that the

27. Congressional Budget Office, *The Economic and Budgetary Effects of Producing Oil and Natural Gas From Shale* (December 2014), www.cbo.gov/publication/49815.

28. See Alan J. Auerbach and Kevin Hassett, "Uncertainty and the Design of Long-Run Fiscal Policy," in Auerbach and Ronald D. Lee, eds., *Demographic Change and Fiscal Policy* (Cambridge University Press, 2001), pp. 73–92, http://tinyurl.com/p93enfp.

29. For an example of such a proposal, see Congressional Budget Office, *Preliminary Analysis of the Rivlin-Ryan Health Care Proposal* (attachment to a letter to the Honorable Paul D. Ryan, November 17, 2010), www.cbo.gov/publication/21928, and Option 1 in Congressional Budget Office, *Health-Related Options for Reducing the Deficit: 2014 to 2023* (December 2013), www.cbo.gov/publication/44906, pp. 6–14.

30. Most proposed policy changes of that sort would affect both the expected amounts of federal outlays and the uncertainty about those outlays, but those two effects are conceptually distinct.

age of eligibility for those programs rose automatically with increases in longevity, the budgetary effects of such increases would be dampened. However, people would face greater uncertainty about the timing and size of the benefits that they would receive, and the effects would vary among subgroups of the population.

In addition, policymakers could reduce the budgetary implications of unexpected rises in interest rates by increasing the share of government borrowing that is done through longer-term securities. Using that approach, the Treasury could lock in interest rates for a considerable period. However, interest rates on longer-term debt are typically higher than rates on shorter-term debt, so that approach would probably increase the interest that the federal government paid. Moreover, if interest rates were locked in for a long period, the federal government would benefit less from unexpected declines in interest rates.

### Reducing Federal Debt

As an alternative or complementary approach, policymakers could improve the federal government's ability to withstand the effects of events that would significantly worsen the budgetary outlook. In particular, reducing the amount of federal debt held by the public would give future policymakers more flexibility in responding to extraordinary events. For example, a financial crisis in the future might have significant negative economic and budgetary implications, just as the 2007–2009 financial crisis did: The ratio of federal debt held by the public to GDP increased by 35 percentage points between 2007 and 2012. If another financial crisis prompted a similar increase when the ratio of federal debt to GDP was already high (such as its current level of 75 percent), policymakers might be reluctant to accept the initial cost of a proposed intervention in the financial system or the economy, even if they expected to recoup at least part of that cost over time.

In addition, a high ratio of debt to GDP increases the risk of a fiscal crisis in which investors lose confidence in the government's ability to manage its budget and the government in turn loses its ability to borrow at affordable rates.[31] There is no way to predict the amount of debt that might precipitate such a crisis, but starting from a position of relatively low debt would reduce the risk.

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31. That sort of crisis might be triggered by an adverse event that quickly drove up the ratio of debt to GDP, such as a depression or a war. For further discussion, see Congressional Budget Office, *Federal Debt and the Risk of a Fiscal Crisis* (July 2010), www.cbo.gov/publication/21625.

APPENDIX

A

# CBO's Projections of Economic and Demographic Trends

The long-term outlook for the federal budget as described in this report was developed on the basis of the Congressional Budget Office's projections for a host of economic and demographic trends for the next three decades. (Average values for 2016 to 2046, the period encompassed by CBO's extended baseline, are shown in Table A-1. A set of annual projections is included in the supplemental data for this report, available online at www.cbo.gov/publication/51580.)

## CBO's Approach to Economic Projections

Through 2026, the economic projections presented in this volume are the same as those that CBO published in its January 2016 forecast (which underlies the agency's most recent 10-year budget projections).[1] For the years beyond 2026, CBO's projections generally reflect historical trends and projected demographic changes.

Comparing this year's economic projections with last year's is complicated by a change in CBO's approach. This year, the detailed economic projections account for the macroeconomic effects of fiscal policy; the detailed projections shown in Appendix A of last year's report, *The 2015 Long-Term Budget Outlook*, did not. Instead, the detailed 2015 economic projections were "benchmark" projections, consistent with a constant ratio of debt to gross domestic product (GDP) and constant marginal tax rates. Some of the macroeconomic effects of the fiscal policies embodied in the extended baseline, and their feedback effects on the budget, were presented separately last year.[2]

The result is that the estimates of economic variables presented in this appendix are not strictly comparable to those CBO published last year. Where possible, this year's appendix highlights differences between this year's and last year's projections that incorporate the effects of fiscal policy. Nonetheless, most economic variables reported here are not strongly affected by fiscal policy, and the demographic projections are not affected at all. Where the effects did have a notable influence on CBO's projections, this appendix highlights those effects for this year's projections.

## Economic Variables

The performance of the U.S. economy in coming decades will affect the federal government's tax revenues, spending, and debt accumulation. To estimate those effects, CBO projects trends in such key economic variables as the size and composition of the labor force, the number of hours worked, earnings per worker, capital accumulation, productivity, inflation, and interest rates. The agency also considers ways in which fiscal policy influences economic activity. (Chapter 6 of this volume discusses the economic effects of some alternative paths for deficits and debt accumulation.)

### Gross Domestic Product

CBO projects that a recovery in aggregate demand will spur more rapid growth in real (inflation-adjusted) GDP over the next few years than the economy has experienced, on average, since the recession ended. Thereafter, real GDP is projected to grow at a pace that reflects increases in the supply of labor, capital services, and productivity that are consistent with the changes in marginal tax rates and increases in federal debt that CBO is projecting in its extended baseline.

CBO's projection of real GDP growth—an annual average of 2.1 percent over the 2016–2046 period—is similar to last year's projection. However, the growth rate is significantly slower than the 2.6 percent rate of the past three decades, primarily because of the anticipated slower growth of the labor force. Moreover, as the labor force

1. See Congressional Budget Office, *Updated Budget Projections: 2016 to 2026* (March 2016), www.cbo.gov/publication/51384, and *The Budget and Economic Outlook: 2016 to 2026* (January 2016), Chapter 2, www.cbo.gov/publication/51129.

2. For a longer discussion of the projections that incorporated effects of fiscal policy under current law, see Congressional Budget Office, *The 2015 Long-Term Budget Outlook* (June 2015), Chapter 6, www.cbo.gov/publication/50250.

Table A-1.

**Average Annual Values for Economic and Demographic Variables That Underlie CBO's Extended Baseline**

| | 2016–2026 | 2027–2036 | 2037–2046 | Overall, 2016–2046 |
|---|---|---|---|---|
| | | **Economic Variables (Percent)** | | |
| Growth of GDP | | | | |
| Real GDP | 2.1 | 2.0 | 2.1 | 2.1 |
| Nominal GDP | 4.1 | 4.1 | 4.2 | 4.1 |
| Growth of the Labor Force | 0.6 | 0.3 | 0.4 | 0.4 |
| Unemployment | | | | |
| Unemployment rate | 4.9 | 5.0 | 4.8 | 4.9 |
| Natural rate of unemployment | 4.8 | 4.7 | 4.6 | 4.7 |
| Growth of Average Hours Worked | -0.1 | -0.1 | * | -0.1 |
| Growth of Total Hours Worked | 0.5 | 0.3 | 0.4 | 0.4 |
| Earnings as a Share of Compensation | 81 | 81 | 81 | 81 |
| Growth of Real Earnings per Worker | 1.2 | 1.3 | 1.3 | 1.3 |
| Share of Earnings Below the Taxable Maximum | 80 | 77 | 77 | 78 |
| Growth of Capital Services | 2.4 | 1.8 | 1.9 | 2.0 |
| Growth of Productivity | | | | |
| Total factor productivity | 1.3 | 1.3 | 1.3 | 1.3 |
| Labor productivity | 1.6 | 1.7 | 1.8 | 1.7 |
| Inflation | | | | |
| Growth of the CPI-U | 2.3 | 2.4 | 2.4 | 2.4 |
| Growth of the GDP price index | 2.0 | 2.0 | 2.0 | 2.0 |
| Interest Rates | | | | |
| Real rates | | | | |
| On 10-year Treasury notes and the OASDI trust funds | 1.6 | 1.9 | 2.2 | 1.9 |
| On all federal debt held by the public | 0.8 | 1.5 | 1.9 | 1.4 |
| Nominal rates | | | | |
| On 10-year Treasury notes and the OASDI trust funds | 3.9 | 4.3 | 4.6 | 4.3 |
| On all federal debt held by the public | 3.1 | 4.0 | 4.3 | 3.7 |
| | | **Demographic Variables** | | |
| Growth of the Population (Percent) | 0.8 | 0.7 | 0.5 | 0.7 |
| Fertility Rate (Children per woman) | 1.9 | 1.9 | 1.9 | 1.9 |
| Immigration Rate (Per 1,000 people in the U.S. population) | 3.9 | 3.9 | 3.8 | 3.8 |
| Life Expectancy at Birth, End of Period (Years)[a] | 80.6 | 81.8 | 83.0 | 83.0 |
| Life Expectancy at Age 65, End of Period (Years)[a] | 20.2 | 20.9 | 21.6 | 21.6 |

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

CPI-U = consumer price index for all urban consumers; GDP = gross domestic product; OASDI = Old-Age, Survivors, and Disability Insurance (Social Security); * = between -0.05 percent and zero.

a. Life expectancy as used here is period life expectancy, which is the amount of time that a person in a given year would expect to survive beyond his or her current age on the basis of that year's mortality rates for various ages.

grows more slowly than the overall population, per capita real GDP is expected to increase more slowly than it has in the past—at an average annual rate of 1.4 percent over the 2016–2046 period, compared with 1.6 percent for the past 30 years.

Over the long term, total GDP is projected to be one-half of one percent below its potential (maximum sustainable) amount. That projection is based on CBO's estimate that actual GDP was roughly that much lower than potential GDP, on average, from 1961 to 2009 and lower than potential GDP, on average, in each of the

past five business cycles. Those outcomes reflect CBO's assessment that actual output has fallen short of potential output during and after economic downturns to a larger extent and for longer periods than actual output has exceeded potential output during economic booms.[3]

## Labor Market

Among the factors accounted for in CBO's labor market projections are the size of the labor force, the unemployment rate, the average number of hours that people work, and various measures of workers' earnings.

**Growth of the Labor Force.** The growth of the labor force has slowed progressively over the past few decades, but particularly since 2007. For the 2016–2046 period, CBO projects that the number of workers will increase by about 0.4 percent per year, on average. That rate is faster than the average since 2007 and similar to the rate CBO projected last year, but less than half the average for the past 30 years.

That slowdown in the pace relative to earlier decades is anticipated to result both from more workers' leaving the labor force (because of the burgeoning retirement of the baby-boom generation, despite the gradual increase in the average retirement age) and from fewer workers' entering it. The drop in new entrants will result from three trends. First, birth rates are declining: The nation's fertility rate has fallen by nearly 50 percent since 1960, to slightly below 2 today (discussed later under "Fertility" on page 103). As a result, the annual growth rate of the population between the ages of 20 and 64, which averaged about 1.0 percent over the past 30 years, is projected to slow to about 0.4 percent over the 2016–2046 period. Next, the participation of women in the labor force, which peaked in 1999, has declined slightly since then. (Participation rates among working-age men also have declined.) And finally, CBO estimates, some fiscal policies projected in the extended baseline would tend to reduce incentives to work. Notably, rising federal debt and increasing marginal tax rates (attributable to growth in real income) would limit the growth of after-tax wages, and continued growth in nongroup health insurance coverage under the Affordable Care Act over the next decade would reduce the need for employment-based coverage.

CBO expects that those forces will be modestly offset by a pair of trends working in the opposite direction. First, increasing longevity will lead people to work longer: In the coming decades, the average person is likely to work about three months longer for each additional year of life expectancy. Thus, if life expectancy was four years longer for one cohort of workers than for an earlier one, the longer-lived cohort would work about a year longer, all else being equal. Second, the population is becoming more educated, and workers with more education tend to stay in the labor force longer than do people with less education.

**The Unemployment Rate.** CBO projects that the unemployment rate will decline from 5.0 percent at the end of 2015 to 4.4 percent in 2017, rise again gradually to 5.0 percent by 2020, and then remain at that level through 2026. In the meantime, the natural rate of unemployment (which results from all sources other than fluctuations in overall demand related to the business cycle) will gradually decline from 4.9 percent to slightly less than 4.8 percent.[4] From 2021 onward, CBO projects, the unemployment rate will remain about one-quarter of a percentage point above the natural rate, which is consistent with the historical average relationship between the two measures and with the projected gap of one-half of one percent between actual and potential GDP.

After 2026, the actual and natural rates of unemployment are both projected to decline gradually as a result of changes in demographics and education: Older and more educated workers tend to have lower actual and natural rates of unemployment, so those rates will decline as the labor force ages and becomes increasingly more educated. By 2046, the natural rate is projected to be slightly less than 4.6 percent, and the actual rate is projected to be about 4.8 percent. The adoption of projections of age- and education-specific natural rates of unemployment results in lower rates than CBO published last year, when the agency projected that the natural rate of unemployment would gradually decline to about 5.3 percent by the end of 2017 and to 5.2 percent by the end of 2020 and remain at 5.0 percent from 2027 onward.

**Average Hours Worked.** Different subgroups of the labor force work different numbers of hours, on average. Men tend to work more hours than women do, and people

3. See Congressional Budget Office, *Why CBO Projects That Actual Output Will Be Below Potential Output on Average* (February 2015), www.cbo.gov/publication/49890.

4. That decline reflects the decreasing share of younger workers and the rising share of older workers in the working-age population: Older workers have lower unemployment rates than younger ones, so the changing shares will reduce the overall rate.

between the ages of 30 and 40 tend to work more than people between the ages of 50 and 60. CBO's projections are based on the assumption that those differences among groups will remain stable. However, the agency also expects that over the long term, the composition of the labor force will shift toward groups that tend to work less (such as older workers). As a result, the average number of hours worked by the labor force as a whole will decline slightly. CBO estimates that by 2046, the average number of hours per worker will be about 2 percent less than it is today, about the same change in hours per worker that CBO projected last year.

**Total Hours Worked.** Total hours worked will increase at an average annual rate of 0.4 percent between 2016 and 2046, CBO estimates, on the basis of projections of the size of the labor force, average hours worked, and unemployment. That estimate matches last year's projection for the 2015–2040 period.

**Earnings as a Share of Compensation.** Workers' total compensation consists of taxable earnings and nontaxable benefits, such as paid leave and employers' contributions to health insurance and pensions. Over the years, the share of total compensation paid in the form of earnings has slipped—from about 90 percent in 1960 to about 81 percent in 2015—mainly because the cost of health insurance has risen more quickly than has total compensation.[5]

CBO expects that trend in health care costs to continue, and that by itself would further decrease the proportion of compensation that workers receive as earnings. However, starting in 2018, the Affordable Care Act will impose an excise tax on some employment-based health insurance plans that have premiums above specified amounts. Some employers and workers will respond by shifting to less expensive plans, thereby reducing the share of compensation consisting of health insurance premiums and increasing the share that consists of earnings. CBO projects that the effects of the tax on the mix of compensation will roughly offset the effects of rising costs for health care for a few decades; after that, the effects of rising health care costs will outweigh those of the excise tax.[6] As a result, the share of compensation that workers receive as earnings is projected to remain near 81 percent through 2046, which is about the same as CBO projected last year. (For more on the projected effects of the excise tax, see Chapter 5; for more on projected changes in health care costs, see Chapter 3.)

**Growth of Real Earnings per Worker.** Trends in prices, the growth of nonwage compensation (such as employment-based health insurance), and average hours worked imply that real earnings per worker will grow by an average of 1.2 percent annually over the 2016–2026 period and by 1.3 percent per year over the 2016–2046 period. Last year, CBO projected that growth in real earnings per worker would average 1.4 percent between 2015 and 2040. The current projection is lower because it accounts for changes in fiscal policy that would result in slower growth of output and earnings; the detailed economic projections published in *The 2015 Long-Term Budget Outlook* did not account for such effects.

**Share of Earnings Below the Taxable Maximum.** Social Security payroll taxes are levied only on earnings up to a maximum annual amount ($118,500 in 2016). Below that amount, earnings are taxed at a combined rate of 12.4 percent, split between the employer and employee (self-employed workers pay the full amount); no tax is paid on earnings above the cap. The taxable maximum has remained a nearly constant proportion of the average wage since the mid-1980s, but because earnings have grown more for higher earners than for others, the portion of covered earnings on which Social Security payroll taxes are paid has fallen from 90 percent in 1983 to 82 percent now.[7] CBO projects that the unequal growth in earnings will continue for the next decade and then stop: The portion of earnings subject to Social Security taxes is projected to fall below 78 percent by 2026 and to remain near that level thereafter. That share is about 1 percentage point lower than CBO projected last year.

The most recent projections, which reflect a reexamination of recent trends, show an increased rate of growth of wages and salaries for higher-income taxpayers relative to the growth of such income for other taxpayers and also

5. For more details, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433.

6. CBO anticipates that the effects of the excise tax on the taxable share of compensation will diminish over time, both because it expects that most people will continue to want a significant amount of health insurance and because the Affordable Care Act set minimum amounts of coverage for health insurance plans. Therefore, the number of additional people moving to less expensive insurance plans will eventually dwindle.

7. Covered earnings are those received by workers in jobs subject to Social Security payroll taxes. Most workers pay payroll taxes on their earnings, although a small number—mostly in state and local government jobs or in the clergy—are exempt.

relative to the growth rates that CBO had previously incorporated into its projections. That adjustment pushed more wages and salaries in CBO's projections above the taxable maximum.

### Capital Services

Over the longer term, growth in the nation's stock of capital and in the flow of productive services from that stock will be driven by economic output, private saving, federal borrowing, marginal tax rates, and international flows of financial capital, CBO estimates. In particular, capital services will expand slightly more slowly than output after 2026 because of rising debt and increasing marginal tax rates.

CBO's projection of growth in the flow of real capital services is slightly below the rate it projected last year, largely because the agency improved its method for estimating the productive services that flow from different types of assets. That change led CBO to lower its estimates of historical and projected growth of capital services in the nonfarm business sector even though the historical data that the agency uses to estimate capital services are largely unchanged. In addition, in this year's projection, the greater accumulation of federal debt crowds out investment, further dampening the growth of capital services. As a result, CBO projects the flow of real capital services to grow at an average rate of 2.0 percent per year between 2016 and 2046.

### Total Factor Productivity

The annual growth of total factor productivity (TFP, the average real output per unit of combined labor and capital services) is projected to increase from about 0.5 percent in 2015 to about 1.4 percent in 2022 and then to slow slightly through 2046, yielding an average annual growth rate of 1.3 percent from 2016 to 2046, or about 0.2 percentage points slower than the average annual rate of nearly 1.5 percent since 1950 and about the same as the average rate since 1990.

The projected path for TFP reflects several considerations that, in CBO's judgment, suggest growth in coming decades that is slower than the long-term historical average. For example, with the exception of a period of rapid growth in the late 1990s and early 2000s, productivity has tended to grow more slowly in recent decades than it has since the 1950s and 1960s. The long-term trend suggests that projections for the next few decades should place somewhat more weight on more recent, slower growth than on the more rapid growth of the more distant past. Thus, although CBO's projections include an acceleration in TFP from its particularly slow recent growth, the agency anticipates that TFP will return to a growth rate that is somewhat slower than its long-term average.

Some developments in particular support such projections for TFP, among them the recent slow growth in labor quality (a measure of workers' skills that accounts for educational attainment and work experience) following a relatively rapid rise over the past few decades. In CBO's judgment, that change results both from a gradual, persistent, long-term slowdown in the increase in average educational attainment and from the burgeoning retirement of a relatively large and skilled portion of the workforce—the baby-boom generation. The decline will be partly offset, however, by the aging of those remaining in the labor force over the next few decades, particularly as better health and longer life expectancy lead people to stay in the workforce longer than did members of previous generations. An older workforce generally has a larger proportion of more highly educated workers because those workers tend to remain in the labor force longer than do workers with less education.

Another factor that is projected to slow the growth of TFP is a reduction in the amount projected for federal investment. Under the assumptions used for CBO's baseline, the government's nondefense discretionary spending is projected to decline over the next decade to a much smaller percentage of GDP than it has averaged in the past. About half of nondefense discretionary spending from the 1980s onward consisted of federal investments in physical capital (such as roads), education and training, and research and development—all contributing to TFP growth. So lower nondefense discretionary spending as a percentage of GDP would mean less federal investment, causing growth in TFP to slow somewhat.

Although CBO's projection in 2015 was also for average TFP growth of 1.3 percent, that consistency is the product of offsetting changes. Because TFP reflects the portion of growth in real GDP that is not attributable to changes either in hours worked or in capital services, the downward revision to capital services in earlier years resulted in a corresponding increase in historical TFP. Higher historical growth in TFP in turn suggests higher growth in the future than CBO previously projected. That change, however, was offset in CBO's projections not only because CBO placed more weight on the considerations discussed above for trends in TFP but also

because recent updates and revisions to historical output data led CBO, in developing its projections, to place more weight on the unexpected and persistent recent weakness in TFP growth.

### Labor Productivity

The growth rates projected for the labor supply, the capital stock, and TFP result in CBO's projection of the average growth of labor productivity (real output per hour worked) of 1.7 percent annually over the 2016–2046 period. Last year, that growth was projected to average 1.8 percent between 2015 and 2040. The current projection is lower mainly because this year's estimate accounts for effects of fiscal policy in the extended baseline that would result in slower growth of investment.

### Inflation

CBO projects the rate of inflation in the prices of various categories of goods and services as measured by the annual rate of change in the consumer price index for urban wage earners and clerical workers and in the consumer price index for all urban consumers (CPI-U). CBO projects that inflation will average 2.4 percent over the 2016–2046 period. (In the long term, both indexes are projected to increase at the same rate.) That long-term rate is slightly less than the average rate of inflation since 1990, when growth in the CPI-U averaged 2.5 percent per year, and slightly more than the 2.3 percent average rate that CBO projected last year for the 2015–2040 period. The change reflects the fact that CBO projected—accurately, as it turns out—that the rate of inflation would be particularly low in 2015, a year that is no longer encompassed by the long-term projections.

After 2018, the annual inflation rate for all final goods and services produced in the economy, as measured by the rate of increase in the GDP price index, is projected to average 0.4 percentage points less than the annual increase in the consumer price indexes.[8] The GDP price index grows more slowly than the consumer price indexes because it is based on the prices of a different set of goods and services and because it is based on a different method of calculation. The projected gap between the CPI-U and the GDP price index is unchanged from last year's estimate.

8. Final goods and services are those purchased directly by consumers, businesses (for investment), and governments, as well as net exports.

### Interest Rates

CBO makes projections of the interest rates, both real and nominal, that apply to federal borrowing, including the rate on 10-year Treasury notes, the average rate on holdings of the Social Security trust funds, and the average rate on federal debt held by the public.

After considering several factors, including slower growth of the labor force, CBO expects real interest rates on federal borrowing to be lower in the future than they have been, on average, over the past few decades. The real interest rate on 10-year Treasury notes (calculated by subtracting the rate of increase in the consumer price index from the nominal yield on those notes) averaged roughly 3.1 percent between 1990 and 2007.[9] That rate has averaged 0.8 percent since 2009 and is projected to be 1.7 percent in 2026. In CBO's projections, the rate continues to rise thereafter, reaching 2.3 percent in 2046, 0.7 percentage points lower than its average over the past few decades.

**Factors Affecting Interest Rates.** Analysts who wish to use past trends as a starting point for long-term projections of interest rates must exercise judgment about which periods to examine. Real interest rates were low in the 1970s because of an unexpected surge in inflation; in the 1980s, when inflation declined at an unexpectedly rapid pace, real rates were high.[10] Interest rates fell sharply during the financial crisis and recession that began in 2007.

9. Between 1970 and 2007, the real interest rate on 10-year Treasury notes averaged 3.2 percent; the average from 1953 to 2007 was 2.9 percent. Historical inflation rates are taken from the consumer price index, adjusted to account for changes over time in the way that the index measures inflation. See Bureau of Labor Statistics, "CPI Research Series Using Current Methods (CPI-U-RS)" (April 13, 2016), www.bls.gov/cpi/cpiurs.htm.

10. CBO calculates real interest rates by subtracting expected rates of inflation from nominal interest rates. Borrowers and lenders agree to nominal interest rates after accounting for their expectations of what inflation will be. However, if rates are set under the expectation that inflation will be a certain percentage and it ends up being higher, real interest rates will turn out to be lower than anticipated. If inflation ends up lower than expected, the opposite will occur. CBO's approach is based on an assumption that the actual consumer price index, adjusted to account for changes over time in the way that the index measures inflation, is a useful proxy for expectations of inflation. One drawback is that if inflation trends are changing rapidly over time, changes in expectations may lag behind changes in actual inflation. Although CBO's approach could mismeasure expectations of inflation and real interest rates in some years, the way inflation has fluctuated over time suggests that CBO's approach yields useful measurements for 30-year averages.

To avoid using any of those possibly less representative periods, CBO considered average interest rates and their determinants for the 1990–2007 period and then judged how different those determinants might be over the long term.[11] Some factors reduce interest rates; others increase them. In CBO's assessment, over the 2016–2046 period, several factors will probably reduce interest rates on government securities relative to their 1990–2007 average:

- The labor force is projected to grow much more slowly than it has for the past few decades. If everything else remains equal (including the unemployment rate), that slower growth in the number of workers will tend to increase the amount of capital per worker in the long term, reducing the return on capital and therefore also reducing the return on government bonds and other investments.[12]

- The share of total income received by high-income households is expected to be larger in the future than it has been during the past few decades. Higher-income households tend to save a greater proportion of their income, so the difference in the distribution of income will increase the total amount of savings available for investment, other things being equal. As a consequence, the amount of capital per worker will rise and interest rates will fall.

- TFP will grow slightly more slowly in the future than it has in recent decades, CBO projects. For a given rate of investment, lower productivity growth reduces the return on capital and results in lower interest rates, all else being equal.

- The risk premium—the additional return that investors require to hold assets that are riskier than Treasury securities—will probably remain higher in the future than its average over the 1990–2007 period. Financial markets were already showing less appetite for risk in the early 2000s, resulting in higher risk premiums than in the 1990s. CBO expects the demand for low-risk assets to be further strengthened by the economic fallout from the financial crisis, the slow subsequent recovery, and financial institutions' response to increased regulatory oversight. Moreover, the greater riskiness perceived for investments in countries with emerging market economies is likely to increase demand for U.S. assets (particularly federal debt) that are considered to be relatively risk-free. That rise in demand will lead to lower returns on those assets (that is, to lower interest rates).

At the same time, in CBO's assessment, several factors will tend to boost interest rates on government securities relative to their average over the 1990–2007 period:

- Under the extended baseline, federal debt would be much larger as a percentage of GDP than it was before 2007—reaching 86 percent by 2026 and 141 percent by 2046. The latter figure is three and a half times the average of the 1990–2007 period. Higher federal debt tends to crowd out private investment in the long term, reducing the amount of capital per worker and increasing both the return on capital and interest rates.

- Net inflows of capital from other countries will be smaller as a percentage of GDP in the future than they have been, on average, in recent decades, CBO projects. In the 1990s and early-to-middle 2000s, rapid economic growth and high rates of saving in various nations with emerging market economies led to large flows of capital from those countries to the United States. Two types of developments are likely to affect those flows in the future. On one hand, as those nations' economies continue to grow, their consumption will probably increase relative to saving—because markets for their debt will develop and because average citizens will tend to receive more of the gains from economic growth—and their demand for domestic investment will rise. On the other hand, recent weakness in the outlook for global economic growth suggests that demand for investment abroad will be somewhat restrained. On net, that combination of changes is projected to reduce capital flows to the United States relative to those in the 1990s or early 2000s, decreasing domestic investment and the amount of capital per worker and boosting rates of return. (Those developments are consistent with CBO's projection that the U.S. trade deficit, the gap between its imports and its exports, will be narrower in the future as a percentage of GDP than it has been for the past few decades.)

11. A Bank of England study identified a similar set of determinants that account for the decline in real interest rates over the past 30 years. See Lukasz Rachel and Thomas D. Smith, *Secular Drivers of the Global Real Interest Rate*, Staff Working Paper 571 (Bank of England, December 2015), http://tinyurl.com/z6zqnb7 (PDF, 1.8 MB).

12. For more information about the relationship between the growth of the labor force and interest rates, see Congressional Budget Office, *How Slower Growth in the Labor Force Could Affect the Return on Capital* (October 2009), www.cbo.gov/publication/41325.

- The capital share of income—the percentage of total income that is paid to owners of capital—has been on an upward trend for the past few decades, and CBO projects that it will remain higher than its average of recent decades. Although that share is expected to decline somewhat over the next decade from its current, historically high level, the factors that appear to have contributed to its rise (such as technological change and globalization) are likely to persist, keeping it above the historical average. In CBO's estimation, a larger share of income accruing to owners of capital will directly boost the return on capital and thus interest rates.

- The retirement of the baby-boom generation and slower growth of the labor force will reduce the number of workers in their prime saving years relative to the number of older people who are drawing down their savings, CBO projects. The result will be a decrease in the total amount of savings available for investment (all else being equal), which will tend to reduce the amount of capital per worker and thereby push interest rates up. (CBO estimates that this effect will only partially offset the positive effect on savings of increased income inequality, leaving a net increase in savings available for investment.)

CBO also has considered other influences on interest rates but has concluded that they will have relatively small effects.

In addition to its analysis of the factors listed above, CBO relies on information from financial markets in projecting interest rates for the long term. The current rate on 30-year Treasury bonds, for example, reflects market participants' judgments about the path of interest rates on short-term securities for 30 years into the future. That market forecast informs CBO's assessment of market expectations for the risk premium and for investment opportunities in the United States and abroad, and it points to considerably lower interest rates well into the future relative to those of recent decades.

**Projections of Interest Rates.** Some factors mentioned above are easier than others to quantify. For instance, the effect of labor force growth and rising federal debt can be estimated from available data, theoretical models, and estimates in the literature. But the extent to which other factors will affect interest rates is more difficult to compute. A shift in preferences for low- rather than high-risk assets is not directly observable, for instance. And although the distribution of income is observable, neither models nor empirical estimates offer much guidance for quantifying its effect on interest rates. Moreover, current interest rates are not a reliable indicator of investors' expectations about interest rates over the long term, in part because maturities of most of the government's outstanding debt securities are much shorter than the 30-year period that is the focus of CBO's long-term projections. In light of those sources of uncertainty, CBO relied on economic models, the research literature, and other information to guide its assessments of the effects of various factors on interest rates over the long term.

The estimates and assumptions that underlie CBO's extended baseline projections suggest a real interest rate on 10-year Treasury notes that averages about 1.9 percent over the 2016–2046 period. That rate is about 1.2 percentage points lower than the 3.1 percent average recorded for the 1990–2007 period, but it also implies that the real rate will gradually increase from its current unusually low level over the next three decades. In the final decade of the 30-year projection period, the rate is projected to average 2.2 percent.

The average interest rate on all federal debt held by the public tends to be somewhat below the rates on 10-year Treasury notes because interest rates are generally lower on shorter-term than on longer-term debt and because Treasury securities are expected to mature, on average, over periods of less than 10 years. The combination of CBO's projections of the interest rates for assets of different maturities and the average maturity of federal debt for the period beyond CBO's 10-year baseline leads to a 0.4 percentage-point difference between the rate on 10-year Treasury notes and the effective rate on federal debt. That difference is projected to average 0.8 percentage points over the next decade. The difference is larger over that period than is projected for later years because a significant portion of federal debt outstanding during that period was issued at the very low interest rates prevailing in the aftermath of the recession. (The average interest rate on all federal debt is projected to rise more slowly than the 10-year rate because only a portion of federal debt matures each year.) Thus, CBO projects, the average real interest rate on all federal debt held by the public (adjusted for the rate of increase in the CPI-U) will be about 1.4 percent for the 2016–2046 period.

The Social Security trust funds hold special-issue bonds that generally earn interest at rates that are higher than the average rate on federal debt. Therefore, in projecting the balances in the trust funds and calculating the present value of future streams of revenues and outlays for those

funds, CBO used an interest rate that averages 1.9 percent for the 2016–2046 period.[13]

Combining CBO's projections of real interest rates with inflation, as measured by the growth of the CPI-U, yields projected nominal interest rates. CBO projects average nominal rates of 4.3 percent on 10-year Treasury notes and 3.7 percent on all federal debt held by the public for the 2016–2046 period.

**Revisions to Projections of Interest Rates.** The interest rate projections in this year's long-term budget outlook are substantially lower than last year's projections. The real rates on 10-year Treasury notes and the Social Security trust funds are projected to average 1.9 percent over the entire 30-year projection period and 2.2 percent in the final decade of the period. In particular, both rates are projected to be 2.2 percent in 2040 (the final year of the projection in *The 2015 Long-Term Budget Outlook*). Last year, after accounting for the effects of fiscal policy in the extended baseline, CBO projected both rates to be 2.6 percent in 2040.[14]

CBO's downward revisions to its interest rate projections are rooted in several factors. Since last year CBO has revised upward its estimates of the risk premium and of the net inflow of foreign capital relative to GDP. Both changes led to a downward revision in projected interest rates and both are consistent with signals from financial markets that participants expect interest rates to remain low well into the future. In addition, a release last July of revised historical data from the Bureau of Economic Analysis led CBO to revise downward its estimate of the share of income that is generated by capital; the new data showed that the share was lower than reported previously.[15] Finally, CBO expects TFP to grow more slowly relative to the growth experienced during the 1990–2007 period than it anticipated last year. The recent decline in the capital share and the slower expected growth in TFP both imply lower returns on capital and, in turn, lower interest rates.

## Demographic Variables

In addition to influencing the overall performance of the economy, the size and composition of the U.S. population affects federal tax revenues and spending. Demographic projections incorporate estimated rates of fertility, immigration, and mortality, and the changes in those variables ultimately will affect the size of the labor force and the number of beneficiaries for such federal programs as Social Security and Medicare.

CBO anticipates that the annual growth rate of the U.S. population will decline gradually from about 0.8 percent in 2016 to about 0.5 percent in 2046 and that the total population will increase from 328 million at the beginning of 2016 to 400 million in 2046. Those values are somewhat below the estimates published in last year's report.

The population is projected not only to grow more slowly but also to become older, on average, than in the past. Because the elderly share of the population is growing and the working-age share is shrinking, the nation will face growing retirement and health care costs as a larger portion of the population receives Social Security and Medicare benefits while a smaller segment pays into the trust funds that support those federal programs.

### Fertility

CBO estimates a total fertility rate of 1.9 children per woman for the 2016–2046 period.[16] (That rate is the average number of children that a woman would have in her lifetime if, at each age of her life, she experienced the birthrate observed or assumed for that year and if she

13. A present value is a single number that expresses a flow of future income or payments in terms of an equivalent lump sum received or paid at a specific point in time; the present value of a given set of cash flows depends on the rate of interest—known as the discount rate—that is used to translate them into current dollars.

14. These comparisons address the economic projections that incorporate the effects of the fiscal policies embodied in the extended baseline. Last year's benchmark projections—that is, the projections consistent with the assumption of a constant ratio of debt to GDP and stable effective marginal tax rates beyond 2025—were different. In last year's benchmark, the real rate on 10-year Treasury notes averaged 2.2 percent over the entire projection period and 2.3 percent in the later years. Although this year's report does not use an economic benchmark, CBO estimated interest rates that are consistent with the assumption of a constant debt-to-GDP ratio and stable effective marginal tax rates beyond 2026. Those projections of 10-year Treasury note rates would be 1.7 percent over the 2016–2046 period, on average, and 1.8 percent in the later years. As a result, the comparable interest rates relative to last year's benchmark projections are revised downward by about 0.5 percentage points.

15. See Stephanie H. McCulla and Shelly Smith, "The 2015 Annual Revision of the National Income and Product Accounts," *Survey of Current Business*, vol. 95, no. 8 (August 2015), pp. 1–31, http://go.usa.gov/x3Fe3 (PDF, 1.5 MB).

16. Although CBO projects a total fertility rate, in its long-term model, the likelihood that a particular woman will have a child depends on such factors as that woman's education, marital status, immigration status, and childbearing history.

survived her entire childbearing period.) Fertility rates often decline during recessions and rebound during recoveries. However, after the 2007–2009 recession, the U.S. fertility rate (which in 2007 was 2.1) dropped and has remained below 1.9. CBO's projection is consistent with that recommended by the Social Security Advisory Board's 2015 Technical Panel on Assumptions and Methods and slightly below the average rate of 2.0 that CBO projected last year for the 2015–2040 period.[17] The change in projected fertility is the largest factor in this year's projection of slower population growth.

### Immigration

CBO's immigration projections match those underlying its 10-year baseline through 2026. After 2026, net annual immigration (which accounts for all people who either enter or leave the United States in any year) is projected to decline slowly until 2036, when it is expected to equal the rate projected by the Census Bureau.[18] (CBO anticipates that net annual immigration will continue to match the Census Bureau's projections thereafter.) On that basis, the rate of net annual immigration to the United States is projected to be 4.0 per thousand people in the U.S. population in 2026 and 3.7 per thousand people in 2046. Net annual immigration is anticipated to rise from 1.4 million people in 2026 to 1.5 million people in 2046. The current projection is higher than the annual net immigration rate of 3.2 per thousand people after 2025 that CBO used in *The 2015 Long-Term Budget Outlook*. CBO increased its projection for the period after 2026 to be more consistent with the trend it anticipates for the next 10 years.

### Mortality

The mortality rate, which is the number of deaths per thousand people, has generally declined in the United States for at least the past half century. During that period, the mortality rate has generally improved more quickly for younger people than for older people. In particular, a recent review of the data by CBO suggests that the differences in relative improvements in mortality exhibited by various age groups are significant and likely to continue. For example, mortality rates for people below 15 years old declined by about 80 percent between 1950 and 2012, an average drop of more than 2½ percent per year, whereas mortality rates for people over the age of 80 declined by an average of less than 1 percent per year over the same period. CBO projects that mortality rates for each five-year age group will continue to decline at the average pace experienced from 1950 through 2012. In contrast, in *The 2015 Long-Term Budget Outlook*, CBO projected that the rate of decline would be the same for all ages and both sexes. This year's projections show a slower rate of decline in mortality rates for people in older groups than for younger, but no difference by sex.

CBO's projections indicate an average life expectancy at birth of 82.3 years in 2040, compared with 79.2 years in 2016.[19] Similarly, CBO projects that life expectancy at age 65 in 2040 will be 21.2 years, or 1.8 years longer than life expectancy at age 65 in 2016.[20] The life expectancies projected for 2040 this year are a bit shorter than those reported last year: In last year's report, life expectancy at birth and at age 65 in 2040 was projected to be 82.6 years and 21.8 years, respectively.

After projecting average mortality rates for men and women in each age group, CBO incorporates differences in those rates on the basis of marital status, education, and lifetime household earnings. (For people under 30, the mortality projections account for age and sex only.) CBO projects a greater life expectancy for people who are married, have more education, and are in higher income groups.[21]

17. See 2015 Technical Panel on Assumptions and Methods, *Report to the Social Security Advisory Board* (September 2015), p. 9, http://go.usa.gov/cJYR5 (PDF, 3.4 MB); and Congressional Budget Office, *The 2015 Long-Term Budget Outlook* (June 2015), www.cbo.gov/publication/50250.

18. See Census Bureau, "Population Projections, 2014 National Population Projections: Summary Tables," Table 1 (accessed July 8, 2016), http://go.usa.gov/x33DB.

19. Life expectancy as used here is period life expectancy, which is the amount of time that a person in a given year would expect to survive beyond his or her current age on the basis of that year's mortality rates for various ages.

20. CBO projects that life expectancy in 2090 will be 87.3 years at birth and 24.6 years at age 65. CBO's projections of life expectancies are longer than those of the Social Security trustees (85.9 and 23.6 years, respectively) but shorter than the projections (88.3 and 25.3 years, respectively) recommended in the report of the 2015 Technical Panel on Assumptions and Methods, *Report to the Social Security Advisory Board* (September 2015), pp. 13–20, http://go.usa.gov/cJYR5 (PDF, 3.4 MB).

21. For more information about mortality differences among groups with different earnings, see Congressional Budget Office, *Growing Disparities in Life Expectancy* (April 2008), www.cbo.gov/publication/41681; and Julian P. Cristia, *The Empirical Relationship Between Lifetime Earnings and Mortality*, Working Paper 2007-11 (Congressional Budget Office, August 2007), www.cbo.gov/publication/19096.

APPENDIX

B

# Changes in Long-Term Budget Projections Since June 2015

The long-term projections of federal revenues and outlays presented in this report differ from the ones that the Congressional Budget Office published in 2015 because of certain changes in law, revisions to some of the agency's assumptions and methods, and the availability of more recent data.[1] (Changes in economic and demographic variables are described in Appendix A.) Additionally, the extended baseline spans 30 years rather than 25—a change consistent with Congressional interest in projections over that period as part of the 2016 budget resolution. Moreover, all of this year's projections beyond 2026 incorporate the effects of fiscal policy under current law. Last year's detailed budget projections did not incorporate those effects.[2] Because most projections in the 2015 report ended in 2040, CBO is only able to compare projections through that year.

With macroeconomic feedback taken into account, debt is projected to rise from about 75 percent of gross domestic product (GDP) this year to 122 percent in 2040 under the extended baseline; last year, CBO projected that debt would rise to 107 percent of GDP in that year (see Figure B-1). That difference stems both from lower projected revenues and lower projected GDP (see Appendix A for details about projections of GDP). As a percentage of GDP, revenues are lower and spending higher than CBO projected last year, but the increased spending relative to GDP results almost exclusively from a lower projection of GDP rather than from higher projected spending.

CBO published less detailed long-term budget projections in January 2016.[3] Those projections were not a full update but rather were based on a simplified approach that the agency has used between full updates.[4] In January, CBO projected that federal debt held by the public would reach 155 percent in 2046; it now projects that debt will reach 141 percent of GDP in that year. That change results primarily from lower projected interest rates.

## Changes in Spending and Revenues Under the Extended Baseline Since June 2015

In CBO's extended baseline, noninterest spending exceeds revenues throughout the projection period; that difference is greater in each future year than that projected last year (see Figure B-2). Despite higher deficits, interest costs on the debt through 2040 are about the same as last year's projections as a share of GDP because of lower projected interest rates and lower projected GDP.

### Noninterest Spending

Through 2040, noninterest spending is projected to be higher relative to GDP than CBO projected in 2015. That spending is projected to equal 22.1 percent of GDP in 2040; last year's projection was 21.3 percent. In the 2015 report, CBO also projected noninterest spending that did not reflect the macroeconomic effects of fiscal policy after 2025. Excluding those effects, noninterest spending was projected to reach 21.1 percent of GDP in 2040 (0.2 percentage points lower than that spending would have been including those effects).

CBO did not publish projections for detailed categories of spending that incorporated the macroeconomic effects of fiscal policy after 2025 in *The 2015 Long-Term Budget Outlook*. Because those projections are not available, the

1. See Congressional Budget Office, *The 2015 Long-Term Budget Outlook* (June 2015), www.cbo.gov/publication/50250.

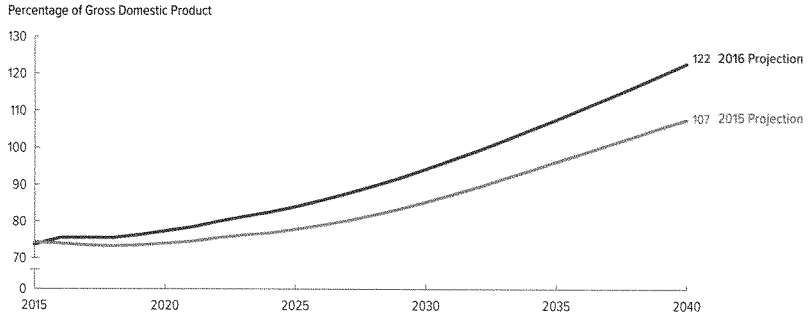
2. Projections of total revenues, total spending excluding interest payments, deficits, and debt incorporating the effects of fiscal policy under current law were described in Chapter 6 last year.

3. See Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), www.cbo.gov/publication/51129.

4. For additional information about that simplified approach, see Congressional Budget Office, *Budgetary and Economic Outcomes Under Paths for Federal Revenues and Noninterest Spending Specified by Chairman Price, March 2016* (March 2016), www.cbo.gov/publication/51260.

Figure B-1.

**Comparison of CBO's 2015 and 2016 Projections of Federal Debt Held by the Public Under the Extended Baseline**




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

comparisons shown below compare this year's projections including the macroeconomic effects of fiscal policy with projections excluding those effects from last year's report. As can be inferred from the 0.2 percentage-point difference between the 2015 projections of overall noninterest spending in 2040 including and excluding the macroeconomic effects of fiscal policy, the change in spending resulting from those effects is generally small in comparison with the amount of spending.

Spending for Social Security is projected to be about the same relative to GDP compared with the amount CBO projected last year, and spending for the major federal health care programs and other noninterest spending are projected to be higher. Those changes result mainly from the decrease in projected GDP.

**Social Security Spending.** CBO has slightly reduced its projections of outlays for Social Security over the coming decade, compared with the amounts it projected in 2015. Although Social Security spending in CBO's extended baseline has declined in dollar terms, the current projection is about the same as last year's as a percentage of GDP because this year's projections of GDP are lower. Through 2026, changes to Social Security spending mostly reflect lower projections of cost-of-living adjustments. Over the full projection period, they also reflect revised projections of mortality improvements by age group and reductions in projections of participation in Social Security's Disability Insurance program. The revised mortality improvements result in smaller increases in longevity at older ages and hence fewer Social Security beneficiaries (for details, see Appendix A). On the basis of an analysis of recent trends and recommendations by the Social Security Technical Panel on Assumptions and Methods, CBO has reduced its projection of the rate at which people will qualify for disability benefits beyond the coming decade. Specifically, CBO now projects that for each 1,000 people who have worked long enough to quality for disability benefits but who are not yet receiving them, an average of 5.4 people will qualify for the program each year after 2026. Last year, that rate was 5.6.

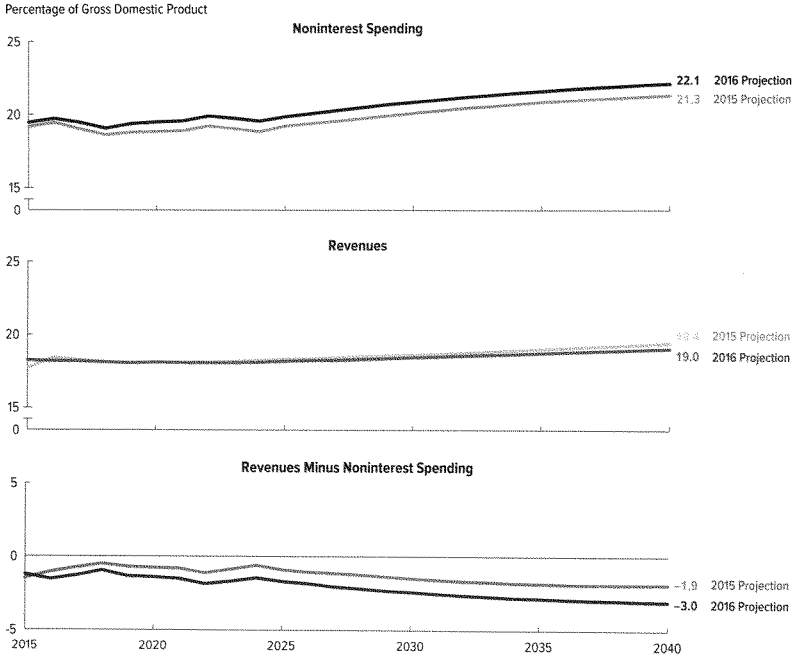
The 75-year actuarial deficit currently projected for Social Security is 4.7* percent of taxable payroll, which exceeds the 4.4 percent estimated last year (see Table 2-1 on page 28). Factors that increased the actuarial deficit include lower projected interest rates and taxable payroll amounts, technical changes to education projections and the claiming methodology for Old-Age Insurance, and the effects of the one-year shift in the projection period. Factors that partially offset the growth in the deficit include revised demographic projections and lower rates of disability incidence.

**Major Federal Health Care Spending.** CBO's current long-term projection of federal spending for the major health care programs, measured relative to GDP, is

[*Value corrected on July 22, 2016]

Figure B-2.

**Comparison of CBO's 2015 and 2016 Projections of Spending and Revenues Under the Extended Baseline**




Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

slightly higher than last year's projection. Spending for Medicare net of offsetting receipts is now estimated to amount to 5.3 percent of GDP in 2040, or about 0.2 percentage points higher than what CBO estimated last year. Outlays for Medicaid and the Children's Health Insurance Program, combined with spending on subsidies for health insurance purchased through the marketplaces established under the Affordable Care Act (ACA) and related spending, are projected to total 3.0 percent of GDP in 2040, which is about 0.1 percentage point higher than the sum projected last year.

CBO's projections of spending for the major federal health care programs beyond 2026 are based on projected enrollment and the rates of excess cost growth for each program (see Chapter 3).[5] Although CBO's general approach has not changed, the agency has adjusted the specifics of its projections for excess cost growth.

5. Excess cost growth is the extent to which health care costs per beneficiary, as adjusted for demographic changes, grow faster than potential GDP per capita. (Potential GDP is CBO's estimate of the maximum sustainable output of the economy.)

- Last year, CBO's long-term projection for excess cost growth for Medicare, Medicaid, and private health insurance premiums depended on three factors: CBO's assessment of the underlying rate of excess cost growth, the rate of excess cost growth implied by baseline projections for the next decade, and a blend of those factors for the 11th through 24th years of the projection period. CBO's estimate of the underlying growth rates in 2014 equaled the historical average rate of excess cost growth for total health care spending—1.4 percent per year over the period from 1985 to 2013. The underlying rate was projected to decline gradually over 75 years to a lower rate that varied by program. The rate after 75 years was 1 percent for Medicare, zero for Medicaid, and zero for private health insurance premiums (an input into projections of subsidies for insurance purchased through the marketplaces and related spending).

- This year, the projected rates of excess cost growth for Medicare, Medicaid, and private health insurance premiums slowly converge to the same rate after 30 years. Through 2026, the rate of excess cost growth for each program matches the rate implied by baseline projections, determined using the same approach as last year. After 2026, excess cost growth for all programs moves toward a rate of 1 percent—which is CBO's estimate of the average rate of excess cost growth for the health care sector 30 years from now (see Chapter 3 for discussion). Thus, CBO projects that Medicare, Medicaid, and private health insurance premiums will all have the same rates of excess cost growth in 30 years. Because the health care system is integrated to a significant degree, spending growth in all parts of the system will be affected by common factors (such as the patterns of practice by physicians and the development and diffusion of new medical technologies). CBO does not have a basis for projecting that the rates of excess cost growth for those three categories would differ in the long term.

As a result of that change in methodology, after the first decade the rate of excess cost growth for Medicare is lower than CBO projected a year ago, whereas excess cost growth rates for Medicaid and private health insurance premiums are similar to last year's projections. The method used to project enrollment in each program is the same as that used in 2015. Spending for those programs as a share of GDP is projected to be slightly higher because of lower projected GDP.

**Other Noninterest Spending.** In this year's projections, total federal spending on everything other than Social Security, the major federal health care programs, and net interest is projected to be higher as a share of GDP than the share CBO projected last year. The difference in projected spending is small in 2016 but will grow in later years. In 2026, CBO's projection of other noninterest spending is 0.3 percent of GDP higher than last year's projection, and the difference between the projections widens to 0.5 percent of GDP by 2040.

Several factors are driving those changes. Primarily, GDP is projected to be smaller than CBO estimated last year, causing any spending as a share of GDP to be higher than it would be otherwise. Secondarily, projected spending has increased. CBO's projected outlays for refundable tax credits over the next decade increased because of enactment of the Consolidated Appropriations Act, 2016, which permanently extended the American Opportunity Tax Credit and expansions of the earned income and child tax credits that were first enacted in 2009 and that had been set to expire at the end of 2017.

Beyond the coming decade, CBO projects, mandatory spending other than that for Social Security, the major health care programs, refundable tax credits, and net interest will decline more slowly than it did in last year's projections (see Chapter 4). CBO bases projections of such spending on the average rate of decline over the final five years of its 10-year baseline projection; this year, that rate of decline is slower than it was last year. In addition, CBO removed spending for the Supplemental Nutrition Assistance Program (SNAP) from this year's calculation of that rate because spending for SNAP over the next decade is not expected to be representative of spending over the longer term. Spending for SNAP is expected to decline significantly relative to GDP through 2026 but decline more slowly thereafter. Excluding SNAP outlays from the calculation further slowed the rate of decline relative to last year's rate. In addition, outlays for discretionary spending in the extended baseline are projected to be slightly higher than in last year's projections, because of an upward adjustment, on net, to the caps on budget authority for discretionary programs (as part of the Bipartisan Budget Act of 2015) and because of changes to actual and projected appropriations.[6]

6. For more information, see Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), Appendix A, www.cbo.gov/publication/51129.

### Interest Costs

Because CBO projects a higher cumulative deficit and lower GDP than last year, interest outlays as a percentage of GDP are about the same in this year's analysis despite lower projected interest rates. Interest spending in 2040 is projected to equal 4.8 percent of GDP; last year, that figure was 4.7 percent.

### Revenues

Federal revenues are projected to be lower relative to GDP in coming decades than what CBO projected in 2015. By 2026, revenues are projected to be 18.2 percent of GDP, slightly below last year's estimate of 18.3 percent. Legislative changes—in particular, enactment of the Consolidated Appropriations Act, 2016, which permanently extended certain tax provisions—are the most significant factor causing CBO to lower its forecast of revenues as a percentage of GDP over the next decade.[7]

That difference in revenues is estimated to persist and grow modestly in later years. By 2040, revenues are projected to equal 19.0 percent of GDP, 0.4 percentage points lower than last year's estimate.[8] The lower revenues as a percentage of GDP over later decades also are largely a result of provisions of the Consolidated Appropriations Act, 2016. In addition to the extension of certain tax provisions, that law made two significant changes to a new excise tax on certain employment-based health insurance plans with high premiums, both of which resulted in lower revenues. First, implementation of the tax, originally scheduled for 2018, has been postponed until 2020. And more significantly, the tax will now be an allowable deduction under the corporate income tax. The impact of those changes is relatively small over the next decade but becomes increasingly significant over time. Slower projected economic growth also contributes to lower revenues.

### The Size of Policy Changes Needed to Make Federal Debt Equal Today's Level

CBO's estimate of the size of policy changes needed this year to make federal debt at some future date equal its current 75 percent of GDP differs from the fiscal gap presented in last year's report, for three reasons.[9] First, this year's calculation covers a longer period—30 years instead of 25 (see Chapter 1). Second, the estimate now accounts for the positive macroeconomic effects of deficit reduction. Third, this year's result reflects higher projected deficits and lower projected interest rates.

Higher deficits in this year's report mean that larger policy changes would be required to make federal debt equal its current percentage of GDP in the future. To ensure that debt in 2041—25 years into the future for ease of comparison with last year's estimates—equaled today's level, lawmakers would have to cut noninterest spending or increase revenues by 1.7 percent of GDP each year from 2017 through 2041 (before taking into account macroeconomic feedback). The projected effects on debt include both the direct effects of such policy changes and the resulting macroeconomic feedback to the budget. That feedback reflects the positive macroeconomic effects of lowering the debt but no assumptions about the specifics of the policy changes. If CBO used the same methodology this year as it used last year (namely, estimating the fiscal gap, which excluded the positive macroeconomic effects of lowering the debt) to calculate the size of policy changes needed to ensure that debt in 25 years equaled today's level, lawmakers would have to cut noninterest spending or increase revenues by 2.0 percent of GDP from 2017 to 2041. Last year, for the 2016–2040 period, CBO estimated that changes equaling 1.1 percent of GDP (excluding all macroeconomic effects) would be required.

## Changes in the Sources of Growth for Spending on Social Security and the Major Federal Health Care Programs

CBO changed how it identifies the causes of projected spending growth for Social Security and the major federal health care programs. Last year, CBO estimated the growth in spending attributable to three factors: aging, excess cost growth, and the increased number of recipients of subsidies for health insurance purchased through the marketplaces and of Medicaid benefits attributable to the ACA. This year, CBO has not separately identified the contribution from that third factor, which has less of an

7. Ibid., pp. 107–108.

8. Revenue projections as a percentage of GDP in *The 2015 Long-Term Budget Outlook* were the same including and excluding the effects of fiscal policy.

9. The fiscal gap equals the present value of noninterest outlays and other means of financing minus the present value of revenues over the projected period, with adjustments to make the ratio of federal debt to GDP at the end of the period equal to the current ratio. For more on the fiscal gap, see Congressional Budget Office, *The 2015 Long-Term Budget Outlook* (June 2015), Chapter 1, pp. 12–14, www.cbo.gov/publication/50250.

effect on spending growth beyond 2016. Growth in spending attributable to the ACA's coverage provisions was much more significant between 2013 and 2016 than it is projected to be after 2016. In this year's analysis, the amount of spending in 2016 is higher than it would have been without the ACA's coverage provisions. But the contribution to the growth in spending from those coverage provisions between 2016 and 2046 is small as a share of GDP in CBO's projections, so it was not reported separately.

CBO's change in analytic approach has very little effect on the projected shares of spending growth attributable to the first two factors—aging and excess cost growth—over the next 25 years. Using this year's approach, CBO projects that aging will account for about 60 percent of the spending growth for both Social Security and the major federal health care programs, and about 50 percent of the spending growth for the major federal health care programs alone between 2016 and 2041. Those shares are very similar to the results CBO presented last year.

## Changes in Alternative Fiscal Paths

Last year, CBO projected spending and revenues under an alternative fiscal scenario. That scenario incorporated several assumptions: that certain policies in place last summer but scheduled to change under current law at that time would continue, that some provisions of law that might be difficult to sustain for a long period would change, and that federal revenues and certain kinds of federal spending would remain at or near their historical shares of GDP. Under those assumptions, the 10-year cumulative deficit increased last year by about $2 trillion (excluding interest costs and macroeconomic effects) over amounts in the extended baseline.[10] In the fall of 2015, some policies assumed in that alternative fiscal scenario were permanently enacted in legislation, so using an updated version of that scenario this year would have resulted in deficit increases that were considerably smaller than those projected in last year's report relative to deficits under the extended baseline. Instead, to show the effects of higher deficits relative to those under current law, CBO has chosen a different approach: presenting the budgetary effects of an illustrative path that, with unspecified fiscal policies, increases the cumulative deficit (excluding interest costs and macroeconomic effects) by $2 trillion over the next 10 years compared with deficits under the extended baseline.

10. Ibid., Chapter 6.

## Changes in Analyzing Uncertainty

CBO has changed one of the factors it varies in its analysis of uncertainty. This year, CBO has not analyzed changes in the decline in mortality rates because the effects on the federal budget are small over the 30-year projection period. Instead, CBO analyzed the effects of varying the labor force participation rate, although it turns out to have small effects over that time horizon as well.

In addition, CBO now believes that a wider range is appropriate for its alternative projections of interest rates and the growth rate of spending per beneficiary for Medicare and Medicaid.

- This year, CBO estimated the effects of average interest rates on government debt that are 1.0 percentage point higher or lower than in the extended baseline; in 2015, that difference was 0.75 percentage points. CBO estimated that range last year by looking at the historical spread between government and private-sector borrowing rates and considered the reasons those historical outcomes might not fully reflect uncertainty about future outcomes. This year, CBO undertook an empirical analysis of some of the sources of unexpected movements in government borrowing rates that are not caused by changes in the economy or federal borrowing. That analysis suggested a larger range of uncertainty.
- Also this year, CBO estimated the effects of spending per beneficiary for Medicare and Medicaid that grows 1.0 percentage point per year more slowly or more quickly than under the extended baseline; last year, that difference was 0.75 percentage points. Last year, CBO considered the range of average growth in spending over 25-year periods for the health care system as a whole. This year, in assessing possible values for the average rate of excess cost growth for Medicare and Medicaid, CBO considered that if current laws remained unchanged, that average could continue to decline or could revert toward the higher rates observed in the past. Additionally, CBO drew upon an alternative approach to measuring uncertainty that uses information about trends and cycles in excess cost growth over time; that approach produced a potential range for excess cost growth through 2046 that was larger than the range based on historical variation.[11] The combination of those two approaches led CBO to increase the range of growth rates.

11. See Ulrich K. Müller and Mark W. Watson, "Measuring Uncertainty About Long-Run Predictions," *Review of Economic Studies* (March 2016), http://dx.doi.org/10.1093/restud/rdw003.

## Changes in Long-Term Budget Projections Since January 2016

In January 2016, CBO published updated long-term projections, which were not a full update of CBO's June 2015 results but rather reflected a simplified approach. Those projections followed the January 2016 baseline projections from 2016 to 2026 and then, for years after 2026, used the interest rates and growth rates for spending, revenues, and GDP from the extended baseline in *The 2015 Long-Term Budget Outlook*. The fully updated long-term projections in this report, by contrast, use the March 2016 baseline projections from 2016 to 2026 and then use updated long-term economic and budget projections for years after the first decade. Therefore, differences in the long-term projections between the January report and this report reflect changes to 10-year baseline projections between January and March 2016 as well as updates to long-term assumptions and projections since June 2015.

Federal debt held by the public is now projected to reach 141 percent of GDP in 2046; in January, CBO projected it would reach 155 percent in that year. That change primarily reflects lower projections of interest rates and thus lower projections of interest costs. Both revenues and spending for the major health care programs are projected to grow more slowly in the long term than CBO projected in January 2016. In total, the effect of lower projected interest rates dominates the effects of the changes in revenue and spending growth.

# List of Tables and Figures

## Tables



## Figures

**Figures (Continued)**

# About This Document

This volume is one of a series of reports on the state of the budget and the economy that the Congressional Budget Office issues each year. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

Prepared with guidance from Ed Harris, Julie Topoleski, and Jeff Werling, the report represents the work of many analysts at CBO. Stephanie Hugie Barello wrote Chapter 1. Marina Kutyavina wrote Chapter 2. Xiaotong Niu wrote Chapter 3. Charles Pineles-Mark wrote Chapter 4. Joshua Shakin wrote Chapter 5. Devrim Demirel wrote Chapter 6, and Jonathan Huntley wrote Chapter 7. Robert Shackleton and Michael Simpson wrote Appendix A. Geena Kim wrote Appendix B. Jessica Banthin, Susan Yeh Beyer, Linda Bilheimer, Barry Blom, Tom Bradley, Chad Chirico, Sheila Dacey, Molly Dahl, Terry Dinan, Philip Ellis, Katherine Fritzsche, Edward Gamber, Holly Harvey, Jeffrey Holland, Lori Housman, Kim Kowalewski, Sarah Masi, Noah Meyerson, Eamon Molloy, Andrea Noda, Benjamin Page (formerly of CBO), Sam Papenfuss, Kevin Perese, Dan Ready, Felix Reichling, Emily Stern, and Robert Stewart made valuable contributions.

Michael Simpson developed the long-term budget simulations, with assistance from Stephanie Hugie Barello, Geena Kim, Marina Kutyavina, Xiaotong Niu, and Charles Pineles-Mark. Devrim Demirel and Jonathan Huntley prepared the macroeconomic simulations. Ed Harris coordinated the revenue simulations, which were prepared by Paul Burnham, Peter Huether, Shannon Mok, Kurt Seibert, and Joshua Shakin. Stephanie Hugie Barello, Benjamin Layton, Justin Lee, Kyle Redfield, and Adam Staveski fact-checked the report. Also, the report builds on the 10-year projections of the economy and budget that CBO released earlier this year and that reflected the contributions of more than 100 people at the agency.

Wendy Edelberg, Jeffrey Kling, and Robert Sunshine reviewed the report. Christine Bogusz, Kate Kelly, Loretta Lettner, Bo Peery, Benjamin Plotinsky, and Gabe Waggoner edited the report, and Maureen Costantino, Jeanine Rees, and Gabe Waggoner prepared it for publication. Stephanie Hugie Barello and Michael Simpson prepared the supplemental data, with assistance from Jeanine Rees.

The report is available on CBO's website (www.cbo.gov/publication/51580).

Keith Hall
Director

July 2016

Chairman PRICE. Dr. Cochrane, Dr. Bernstein, Dr. Holtz-Eakin, we want to welcome you. We thank you very much for taking time today. Your prepared remarks will be made part of the record. Each of you will have 5 minutes to present your opening statement.

And, Dr. Cochrane, you may begin when ready.

## STATEMENTS OF DOUGLAS J. HOLTZ-EAKIN, PH.D., PRESIDENT, AMERICAN ACTION FORUM; JOHN H. COCHRANE, PH.D., SENIOR FELLOW, HOOVER INSTITUTION; AND JARED BERNSTEIN, PH.D., SENIOR FELLOW, CENTER ON BUDGET AND POLICY PRIORITIES

### STATEMENT OF JOHN H. COCHRANE

Mr. COCHRANE. Chairman Price and Mr. Ryan and members of the Committee, it is a real honor to talk to you today.

Yes, sclerotic growth is our country's most fundamental economic problem. If we could get back to the 3.5 percent postwar average, we would, in the next 30 years, triple rather than just double the size of the economy, and also tax revenues, which would do wonders for our debt problems.

So why has growth halved? The most plausible answer is, I think, simple and sensible: Our legal and regulatory system is slowly strangling the golden goose of growth.

How do we fix it? Harder. Our national economic debate just makes the same points louder, over and over again, and is going nowhere. So let's look together to find novel and effective policies that can appeal to both sides of the argument.

Let's get past too much regulation or too little regulation and fix regulation instead. Regulation is too discretionary. People can't read the rules and know what to do. Regulatory decisions take forever. Regulation has lost its rule of law protections. Agencies are cop, prosecutor, judge, jury, and executioner all in one. And most of all, regulation is becoming more politicized.

Congress can fix this. Let's get past spending more or spending less on social programs and fix the programs instead.

Often, if people earn an extra dollar, they lose more than a dollar of benefits. No wonder people get stuck. If we fix these disincentives, we will help people better, we will encourage growth and economy, and, in the end, we will spend less.

Now, spending is a serious problem, but just moving spending off the books doesn't help. For example, we allow a mortgage interest tax deduction, but that is exactly the same thing as collecting taxes and then sending checks to homeowners, but larger checks for high-income people, larger checks for people who borrow a lot, and larger checks for people who refinance often. You would never do that.

Suppose we eliminate the mortgage deduction and put housing subsidies on budget instead. The resulting homeowner subsidy would surely be a lot smaller, help lower-income people a lot more, and would be better targeted at getting people in houses. You would both be happy. The budget would look bigger, but in reality, we would be spending less and growing more.

Taxes. Tax reform fails because arguments over the level of taxes, subsidies, or redistribution torpedo sensible simplifications

we all know we should do. We could achieve tax reform, then, by separating the four confounding issues.

First, determine the structure of taxes, just to raise revenue with minimal economic damage, but leave the rates blank, then separately negotiate the rates, put all the tax incentives and deductions in a separate subsidy code, and preferably as visible on-budget expenditures, and then separately add an income redistribution code.

If you did these four things separately, the necessary big fights over each one need not derail progress on the others.

I should say, a massive simplification of the Tax Code is, I think, more important than the rates and easier for us all to agree on.

Debt and deficits. Each year, the CBO correctly declares our long-term debt unsustainable and not much happens. Yelling louder won't work.

So let's, first, face the biggest problem, a debt crisis, when the U.S. really needs to borrow trillions of dollars and suddenly can't; a debt crisis, not a predictable rise in interest rates or something we can see coming. Crises are always sudden and unexpected, like earthquakes and wars. Even Greece could borrow at remarkably low interest rates—until, one day, all of a sudden it couldn't.

The answers are straightforward. Sensible reforms to Social Security and Medicare are on the table. Address underfunded pensions, huge credit and bailout guarantees, and other things that might force the U.S. to need a lot of money suddenly.

Buy some insurance. Every homeowner shopping for a mortgage chooses between a floating rate, lower initially, and a fixed rate, higher initially, but forever stopping the chance of interest rates going up and blowing their budget.

The same for the U.S. Fixed rates, borrowing longer, would forever insulate the budget from interest rate risks, and those are the essential ingredients of a debt crisis.

Above all, undertake simple pro-growth economic policies and grow out of the debt.

You may object that fundamental reform of this sort is not politically feasible. Well, what is politically feasible changes fast these days. Winston Churchill once said, Americans can be trusted to do the right thing after we have tried everything else. Well, we have tried everything else, so let's do the right thing.

[The prepared statement of John H. Cochrane follows:]

Growing Risks to the Budget and the Economy.
Testimony of John H. Cochrane before the House Committee on Budget.
September 14 2016

Chairman Price, Ranking Member Van Hollen, and members of the committee: It is an honor to speak to you today.

I am John H. Cochrane. I am a Senior Fellow of the Hoover Institution at Stanford University[1]. I speak to you today on my own behalf on not that of any institution with which I am affiliated.

Sclerotic growth is our country's most fundamental economic problem[2]. From 1950 to 2000, our economy grew at 3.6% per year[3]. Since 2000, it has grown at barely half that rate, 1.8% per year. Even starting at the bottom of the recession in 2009, usually a period of super-fast catch-up growth, it has grown at just over 2% per year. Growth per person fell from 2.3% to 0.9%, and since the recession has been 1.3%.

The CBO long-term budget analysis[4] looks out 30 years, and forecasts roughly 2% growth. On current trends that is likely an over-estimate, as it presumes we will have no recessions, or that future recessions will have not have the permanent effects we have seen of the last several recessions. If we grow at 2%, the economy will expand by 82% in 30 years, almost doubling[5]. But if we can just get back to the

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[1] You can find a full CV, a list of all affiliations, and a catalog of written work at http://faculty.chicagobooth.edu/john.cochrane/index.htm.

[2] This testimony summarizes several recent essays. On growth and for an overview, see "Economic Growth." 2016. In John Norton Moore, ed., *The Presidential Debates* Carolina Academic Press p. 65-90. http://faculty.chicagobooth.edu/john.cochrane/research/papers/cochrane_growth.pdf; "Ending America's Slow-Growth Tailspin." *Wall Street Journal*, May 3 2016. http://www.wsj.com/articles/ending-americas-slow-growth-tailspin-1462230818, and "Ideas for Renewing American Prosperity" *Wall Street Journal* July 4 2014. http://online.wsj.com/articles/ideas-for-renewing-american-prosperity-1404777194.

[3] https://fred.stlouisfed.org/series/GDPCA, Continuously compounded annual rates of growth. Per capita https://fred.stlouisfed.org/series/A939RX0Q048SBEA

[4] https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51580-LTBO-2.pdf

[5] 100*exp(30 x 0.02) = 182. 100*exp(30*0.035) = 286.

3.6% postwar normal growth rate, the economy will expand by 194%, almost tripling instead. We will add the entire current US economic output to the total. In per-person terms, a 1.3% trend gives the average American 48% more income in 30 years. Reverting to the postwar 2.3% average means 99% more income, twice as much. And economic policy was not perfect in the last half of the 20th century. We should be able to do even better.

Restoring sustained, long-term economic growth is the key to just about every economic and budgetary problem we face.

Nowhere else are we talking about doubling or not the average American's income[6].

Nowhere else are we talking about doubling or not Federal revenues. Long-term Federal revenues depend almost entirely on economic growth. In 1990, the Federal Government raised $1.6 trillion inflation-adjusted dollars. In 2016, this has doubled to $3.1 trillion. Wow! Did the government double tax rates? No. The overall federal tax rate stayed almost the same – 18.0% of GDP in 1990, 18.8% of GDP today. *Income* doubled.

Whether deficits and debt balloon, whether we our government can pay for Social Security and health care, defend the country, and fund other goals such as protecting the environment, depend most crucially on economic growth.

Why has growth halved? Some will tell you that the economy is working as well as it can, but we've just run out of new ideas.[7] A quick tour of the Silicon Valley makes one suspicious of that claim.

Others will bring you novel and untested economic theories: we suffer an ill-defined "secular stagnation" that requires massive borrowing and spending, even wasted spending. The "multiplier" translating government spending to output is not one and a half, and a temporary expedient which can briefly raise the level of income in a depression, but six or more, enough to finance itself by the larger tax revenues which larger output induces – a proposition long derided of the "supply side" – and

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[6] As an example of agreement on the fundamental importance of growth among economists of all political leanings, see Larry Summers, "The Progressive Case for Championing Pro-Growth Policies," 2016. http://larrysummers.com/2016/08/08/the-progressive-case-for-championing-pro-growth-policies/

[7] For an excellent recent exposition of this view, see Robert J. Gordon, *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War.* Princeton University Press 2016. http://press.princeton.edu/titles/10544.html

it can now kick off long-term growth[8]. Like 18th century doctors to whom disease was an imbalance of humors, modern macroeconomic doctors have one diagnosis and remedy for all the complex ills that can befall a modern economy: "demand!"

I'm here to tell you the most plausible answer is simple, clear, sensible, and much more difficult. Our legal and regulatory system is slowly strangling the golden goose of growth. There is no single Big Fix. Each market, industry, law, and agency is screwed up in its own particular way, and needs patient reform.

America is middle aged, out of shape and overweight. One voice says: well, get used to it, buy bigger pants. Another voice says: 10 day miracle detox cleanse! I'm here to tell you that the only reliable answer is good old-fashioned diet and exercise.

Or, a better metaphor perhaps: our economy, legal and regulatory system has become like a hoarder's house. No, there isn't a miracle organizer system. We have to patiently clean out every room.

Economic regulation, law and policy all slow growth by their nature. Growth comes from new ideas, new products, new processes, new ways of doing things, and most of these embodied in new companies. And these upend old companies, and displace their workers, both of whom come to Washington pleading that you save them and their jobs. It is a painful process. It is natural that the administration, regulatory agencies, and you, listen and try to protect them. But every time we protect an old company, an old industry, or an old job, from innovation and competition, we slow down growth.

How do we solve this problem and get back to growth? Our national political and economic debate has gotten stale, each side repeating the same base-pleasing talking points, but making no progress persuading the other. Making one or the other points again, or louder, will get us nowhere. I will try, instead, to find policies that think outside of these tired boxes, and that can appeal to all sides of the political spectrum.

Rather than "more government" or "less government," let's focus on *fixing* government. We need above all a grand simplification of our economic, legal, and political life, so that government does what it does competently and efficiently.

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[8] An influential example of these views, including self-financing stimulus: J. Bradford DeLong and Lawrence H. Summers, "Fiscal Policy in a Depressed Economy" *Brookings Papers on Economic Activity*. Spring 2012. https://www.brookings.edu/bpea-articles/fiscal-policy-in-a-depressed-economy/. Interestingly, DeLong and Summers condition their view on interest rates stuck at zero, a cautionary limitation that current stimulus advocates seem to have forgotten.

*Regulation: fix the process.*

"There's too much regulation, we're stifling business. No, there's too little regulation, businesses are hurting people." Or so goes the tired argument. Regulation *is* strangling business investment, and especially the formation of new businesses. But the main problem with regulation is *how* it's done, not *how much*. If we *fix* regulation, the quantity will take care of itself. We can agree on smarter regulation, better regulation, not just "more" or "less" regulation[9].

Regulation is too discretionary – you can't read the rules and know what to do, you have to ask for permission granted on regulators' whim. No wonder that the revolving door revolves faster and faster, oiled by more and more money.

Regulatory decisions take forever. Just deciding on the Keystone Pipeline or California's high speed train – I pick examples from left and right on purpose – takes longer than it did to build the transcontinental railroad in the 1860s. By hand.

Regulation has lost rule-of-law protections. You often can't see the evidence, challenge witnesses, or appeal. The agency is cop, prosecutor, judge, jury and executioner all rolled in to one.

Most dangerous of all, regulation and associated legal action are becoming more politicized. Each week brings a new scandal. Last week[10], we learned how the Government shut down ITT tech, but not the well-connected Laureate International. The IRS still targets conservative groups[11]. The week before, we learned how the company that makes Epi-pens, headed by the daughter of a Senator, got the FDA to block its competitors, Congress to mandate its products, and jacked up the price of an item that costs a few bucks to $600. This is a bi-partisan danger. For example, presidential candidate Donald Trump has already threatened to use the power of the government against people who donate to opponents' campaigns[12].

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[9] See "Rule of Law in the Regulatory State." 2015. http://faculty.chicagobooth.edu/john.cochrane/research/papers/rule_of_law_and_regulation essay.pdf

[10] http://www.wsj.com/articles/the-clinton-for-profit-college-standard-1473204250

[11] http://www.washingtontimes.com/news/2016/sep/7/irs-refuses-to-abandon-targeting-criteria-used-aga/

[12] http://www.usatoday.com/story/news/politics/onpolitics/2016/02/22/trump-ricketts-family-better-careful/80761060/

America works because you can lose an election, support an unpopular cause, speak out against a policy you disagree with, and this will not bring down the attentions of the IRS, the EPA, the NLRB, the SEC, the CFPB, the DOJ, the FDA, the FTC, the Department of Education, and so forth, who can swiftly put you out of business even if eventually you are proven innocent, or just slow-roll your requests for permissions until you run out of money.

This freedom does not exist in much of the world. The Administrative state is an excellent tool for cementing power. But when people can't afford to lose an election, countries come unglued. Do not let this happen in the US.

Congress can take back its control of the regulatory process. Write no more thousand-page bills with vague authorizations. Fight back hard when agencies exceed their authorization. Insist on objective and retrospective cost benefit analysis. Put in rule-of law protections, including discovery of how agencies make decisions. Insist on strict timelines – if an agency takes more than a year to rule on a request, it's granted.

Health care and finance are the two biggest new regulatory headaches. The ACA and Dodd-Frank aren't working, and are important drags on employment and economic growth. Simple workable alternatives exist. Implement them.

The real health care problem is not how we pay for health care, but the many restrictions on its supply and competition[13]. If hospitals were as competitive as airlines, they would work darn hard to heal us at much lower – and disclosed! – prices. If the FDA did not strangle new medicines and devices, even generics, prices would fall.

Competition is always the best disinfectant, guarantor of good service and low prices. Yet almost all uncompetitive markets in the US are uncompetitive because some law or regulation keeps competitors out.

Rather than guarantee bank debts, and unleash an army of regulators to make sure banks don't risk too much, we should instead insist that banks *get* their money in ways that do not risk crises, primarily issuing equity and long-term debt. Then banks can fail just like other companies, and begin to compete just like other companies[14].

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[13] See "After the ACA: Freeing the market for health care." 2015. In Anup Malani and Michael H. Schill, Eds. *The Future of Healthcare Reform in the United States*, p. 161-201, Chicago: University of Chicago Press. http://faculty.chicagobooth.edu/john.cochrane/research/papers/after_aca_published.pdf

[14] See "Toward a run-free financial system." 2014. In *Across the Great Divide: New Perspectives on the Financial Crisis,* Martin Neil Baily and John B. Taylor, Editors,

"The planet is dying, control carbon!" "Your crony energy boondoggles and regulations are killing the economy!" Well, that argument is not getting us anywhere, is it? The answer is straightforward: A simple carbon tax *in exchange for* elimination of all the growth-killing, intrusive, cronyist, and ineffective micromanagement. We can continue to argue about the rate of that tax, but it will both reduce more carbon, and increase more growth, than the current ineffective policies – and stagnant debate.

None of these recommendations are ideological or partisan. These are just simple, clean-out-the-junk, workable ways to get our regulatory system to actually work, for its goal of protecting consumers and the environment, at minimal economic and political damage.

*Social programs: Fix the incentives.*

"Cut spending, or the debt will balloon!" "Raise spending or people will die in the streets!" That's getting nowhere too. And it ignores central problems.

In many social programs, if you earn an extra dollar, you lose a dollar or more of benefits. Many programs have cliffs, especially in health care and disability, where earning one extra dollar triggers an enormous loss. Even when one program cuts benefits modestly with income, the interaction of many programs makes work impossible[15]. No wonder that people become trapped. We need to fix these disincentives. Doing so will help people better. If we fix the incentives, though it may look like we spend more, in the end we will spend less – and encourage economic growth as well as opportunity.

*Spend more to spend less.* "Spending is out of control! We need to spend less or there will be a debt crisis!" "Oh there you go being heartless again. We need to invest more in programs that help Americans in need." I feel like I'm at a dinner party hosted by a couple in a bad marriage. This isn't getting us anywhere.

It is important to limit Federal spending. However, we tend to just limit the appearance of spending by moving the same activities off the books. Off-the-books spending does the same economic damage. Or more.

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Stanford: Hoover Institution Press, p. 197-249. http://faculty.chicagobooth.edu/john.cochrane/research/papers/across-the-great-divide-ch10.pdf, and "A Blueprint for Effective Financial Reform." 2016. In George P. Shultz, ed, *Blueprint for America* Hoover Institution Press, p. 71 - 84. http://faculty.chicagobooth.edu/john.cochrane/research/papers/george_shultz_blueprint_for_america_ch7.pdf

[15] See Casey Mulligan *The Redistributon Recession*, Oxford University Press 2012.

For example, we allow an income tax deduction for mortgage interest, in order to subsidize homeownership. From an economic point of view, this is exactly the same thing as collecting higher taxes, and then sending checks to homeowners. It *looks* like we're taxing and spending less than we really are. But from an economic growth point of view, it's the same thing.

Actually, it's worse, because it adds unfairness and inefficiency. Suppose a colleague proposes a bill to you: The U.S. Treasury will send checks to homeowners, but high income people get much bigger checks, as will people who borrow a lot, and people who refinance often and take cash out. People with low incomes, who save up to buy houses, or don't refinance, get a lot less. You would say, "You're out of your mind!" But that's exactly what the mortgage interest deduction achieves!

If we were to eliminate the mortgage deduction, and put housing subsidies on budget, where taxpayers can see where their money is going, the resulting homeowner subsidy would surely be a lot smaller, much more progressive, helping lower income people, better targeted at getting people in houses, and less damaging of savings and economic growth. Both Republicans and Democrats should rejoice. Except the headline amount of taxing and spending will increase. Well, spend more to spend less.

We allow a tax deduction for charitable deductions. This is exactly the same thing as taxing more, but then sending checks to non-profits as matching contributions – but much larger checks for contributions from rich people than from poorer people. Then, many "non-profits" spend a lot of money on private jet travel, executive salaries, and political activities. Actual on-budget federal spending, convoluted and inefficient as it is, at least has a modicum of oversight and transparency. If we removed the deduction, but subsidized worthy charities, with transparency and oversight, we'd do a lot more good, and probably overall tax less and spend less. Except the headline amount of taxing and spending might increase. Well, spend more to spend less.

Mandates are the same thing as taxing and spending. Many European countries tax a lot, and then provide services, like health insurance. We mandate that employers provide health insurance. It looks like we're taxing and spending less, but we're not. A health insurance mandate has exactly the same economic effects as a $15,000 head tax on each employee, financing a $15,000 health insurance voucher.

Economics pays no heed to budget tricks. Spending too much rhetorical effort on lowering taxes and spending induces our government to such tricks, with the same growth-destroying effects. If you want economic growth, treat every mandate as taxing and spending.

*Taxes: break up the argument.*

The outlines of tax reform have been plain for a long time: lower marginal rates, broaden the base by getting rid of the massive welter of special deals. But it can't get done. Why not?

When we try to fix taxes[16], we argue about four things at once: 1) What is the right *structure* for a tax code? 2) What is the right *level* of taxes, and therefore, of spending? 3) What activities should the government *subsidize* – home mortgages, charitable contributions, electric cars, and so on? 4) How much should the government *redistribute* income?

Tax reforms fail because we argue about all these together. For example, the Bowles-Simpson commission got to an improvement on the structure of taxes, but then the reform effort fell apart when the Administration wanted more revenue and congressional Republicans less.

I am back at my dysfunctional dinner party. Sometimes, in politics as in marriage, it is wise to bundle issues together, each side accepting a minor loss to ensure what they see as a major gain. You clean up your socks, I'll clean up my makeup. Sometimes, however, we bundle too many issues together, and the result is paralysis, as each side vetoes a package of improvements over a small issue. Then, it's better to work on the issues separately.

So, let's fix taxes by separating these four issues, in four commissions possibly, or better in four completely separate sections of law.

1) *Structure.* Agree on the right structure of the tax code, with its only goal to raise revenue at minimal economic distortion, but *leave the rates blank.*

2) *Rates.* Determine the rates, without touching the structure of the tax code. A good tax code should last decades. Rates may change every year, and likely will be renegotiated every four. But those who want higher or lower rates know they can agree on the structure of the tax code.

3) Separate the *subsidy* code from the tax code. Mortgage interest subsidies? Electric car subsidies? Sure, we'll talk about them, but separately. Then, we don't have to muck up raising revenue for the government with subsidies, and the budgetary and economic impact of subsidies can be evaluated on their own merits

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[16] See "Here's what genuine tax reform looks like." *Wall Street Journal,* December 23 2015. http://www.wsj.com/articles/heres-what-genuine-tax-reform-looks-like-1450828827

4) Separate the *redistribution* code from the *tax* code. Then we don't muck up raising revenue for the government with income transfers.

The main point is that by separating these four elements of law, each with fundamentally different purposes, we are much more likely to make coherent progress on each. You need not oppose beneficial aspects of an economically efficient tax simplification, say, if you wish to have a greater level of redistribution – well, at least any more than you might oppose any random bill in order to force your way on that issue.

Some thoughts on how each of these might work:

*Structure.* The economic damage of taxation is entirely about "marginal" rates – if you earn an *extra* dollar, how much do you get to enjoy it, after *all* taxes, federal, state, local, sales, estate, and so forth. Economics has really little to say about how *much* taxes people pay. The economists' ideal is a tax system in which people pay as much as the Government needs – but each *extra* dollar is tax-free. Politics, of course, focuses pretty much on the opposite, how much people pay and ignoring the economically-distorting margins.

Thus, if you ask 100 economists, "now, forget politics for a moment –that's our job – and tell me what the right tax code is, with the only objective being to raise revenue without distorting the economy," the pretty universal answer will be a consumption tax – with no corporate tax, income tax, tax on savings or rates of return, estates, or anything else, and essentially no deductions. (They will then say "but..." and go on to demand subsidies and income redistribution, at which time you have to assure them too that we'll discuss these separately.)

A massive simplification of the tax code is, in my opinion, as or more important than the rates – and it's something we're more likely to agree on. America's tax code is an obscenely complex cronyist nightmare.

For example, that's why I favor, and you should seriously consider, eliminating the corporate tax. Corporations never pay any taxes. All money they send to the government comes from higher prices, lower wages, or lower returns to shareholders – and mostly the former two. If you tax people who receive corporate profits, rather than collecting taxes from higher prices and lower wages, you will have a more progressive tax system.

But more importantly, if you eliminate the corporate tax, you will eliminate the constant stream of lobbyists in your offices each day asking for special favors.

Far too many businesses are structured around taxes, and far too many smart minds are spending their time devising corporate tax avoidance schemes and lobbying strategies.

A much simpler tax code even with sharply higher rates – but very clear rates, that we all know about and can plan on – may well have less economic distortion than a massively complex code, with high statutory rates, but a welter of complex schemes and deductions that result in lower taxes.

*Subsidy code.* Tax expenditures – things like deductions for mortgage interest, employer provided health care, charitable contributions, and the $10,000 credit my wealthy Palo Alto neighbor got from the taxpayers for buying a Tesla -- are estimated at $1.4 trillion[17], compare with $3.5 trillion Federal Receipts and $4 trillion Federal Expenditures.[18] Our Federal Government is really a third larger than it looks.

While the subsidy code could consist of a separate discussion of tax expenditures, it would be far better for the rules of the subsidy code to be: all subsidies must be on budget, where we can all see what's going on.

*Redistribution.* Even a consumption tax can be as progressive as one wants. One can use the regular income tax code with full deduction of savings and omitting capital income, thus taxing high consumption at higher rates and low consumption at lower rates.

Again, however, it might well be more efficient to integrate income redistribution with social programs. Put it on budget, and send checks to people. Yes, that makes spending look larger, but sending a check is the same thing as giving a tax break. And spending can be more carefully monitored.

*Infrastructure*

Infrastructure is all the rage[19]. America needs infrastructure. Good infrastructure, purchased at minimum cost, that passes objective cost-benefit criteria, built promptly, can help the economy in the long run. Soft infrastructure – a better justice system, for example – matters as much as hard infrastructure – more asphalt.

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[17] https://www.whitehouse.gov/omb/budget/Analytical_Perspectives Table 14; http://www.taxpolicycenter.org/briefing-book/what-tax-expenditure-budget

[18] https://fred.stlouisfed.org/series/W019RCQ027SBEA

[19] See "The Clinton Plan's Growth Deficit." *Wall Street Journal*, August 12 2016. http://www.wsj.com/articles/the-clinton-plans-growth-deficit-1470957720. Also, for an excellent and well documented review of these issues, see Edward L. Glaeser, 2016, "If you Build it..." City Journal, Summer 2016, http://www.city-journal.org/html/if-you-build-it-14606.html

However, there is no case that the halving of America's growth rate in the last 20 years is centrally due to potholes and rusting bridges. Poor infrastructure is not the *cause* of sclerosis, so already one should be wary of infrastructure investment as the central plan to *cure* that sclerosis.

The claim that infrastructure spending will lift the economy out of its doldrums lies on the "multiplier" effect, that any spending, even wasted, is good for the economy. That is a dubious proposition, especially when the task is to raise the economy by tens of trillions, over decades.

Modern infrastructure is built by machines, and not many people; even less people who do not have the specialized skills. A Freeway in California will do little to help employment of a high school dropout in New York, or a middle-aged mortgage broker in New Jersey. Neither knows how to operate a grader.

The problem with infrastructure is not lack of money. President Obama inaugurated a nearly trillion dollar stimulus plan 8 years ago. His Administration found out there are few shovel-ready projects in America today. They're all tied up waiting for historic review, environmental review, and legal challenges.

The problem with infrastructure is a broken *process*. Put a time limit on historic, environmental, and other reviews. Require serious, objective, and retrospective cost-benefit analysis. Repeal Davis-Bacon and other contracting requirements that send costs soaring. If the point is infrastructure it should be infrastructure, not passing money around. You ought to be able to agree on more money in return for assurance that the money is wisely spent.

*Debt and deficits*

This hearing is also about budgets and debts, which I have left to the end. Yes, our deficits are increasing. Yes, every year the Congressional Budget Office declares our long-term promises unsustainable.

I have not emphasized this problem, though in my opinion it is centrally important, and I think I was invited here to say so.

Recognize that computer simulations with hockey-stick debt, designed to frighten into submission a supporter of what he or she feels is necessary government spending, are as ineffective as computer simulations with hockey-stick temperatures, designed to frighten into submission a supporter of current economic growth and skeptic of draconian energy regulation. Yelling about each, louder, is not going to be productive.

And there are many voices who tell you debt is not a problem. Interest rates are at record lows. Why not borrow more, and worry about paying it back later?

So, let me offer a few out of the box observations, and suggestions that you might agree on.

It is useful to clarify why debt is a problem. The case that large debts will slowly and inexorably push up interest rates, and crowd out investment, is hard to make in this era of ultra-low rates. Debt does place a burden of repayment on our children and grandchildren, but if we have reasonable economic growth they will be wealthier than we are.

The biggest danger that debt poses is a crisis.

Debt crises, like all crises that really threaten an economy and society, do not come with decades of warning. Do not expect slowly rising interest rates to canary the coalmine. Even Greece could borrow at remarkably low rates. Until, one day, it couldn't, with catastrophic results.

The fear for the US is similar. We will have long years of low rates. Until, someday, it is discovered that some books are cooked, and somebody owes a lot of money that they can't pay back, and people start to question debts everywhere.

For example, suppose Chinese debts blow up, and southern Europe as well. Both Europe and China will start selling Treasury debt quickly. Suppose at the same time that student loans, state and local pensions, and state governments are blowing up, along with some large U.S. companies, and banks under deposit insurance. A recession looms, which the US will want to fight with fiscal stimulus. The last crisis occasioned about $5 trillion of extra borrowing. The next one could double that.

So, the U.S. needs to quickly borrow additional trillions of dollars, while its major customers – foreign central banks – are selling. In addition, the U.S. borrows relatively short term. Each year, the U.S. borrows about $7 trillion to pay off $7 trillion of maturing debt, and then more to cover the deficit.

Imagine all this happens 10 years from now, with social security and medicare unresolved and increasing deficits. The CBO is still issuing its annual warnings that our debt is unsustainable. Now, bond investors are willing to lend to the US government so long as they think someone else will lend tomorrow to pay off their loans today. When they suspect that isn't true, they pull back and interest rates spike.

But our large debts leave our fiscal position sensitive to interest rate rises. At 100% debt to GDP ratio, if interest rates rise to just 5%, that means the deficit rises by 5 percentage points of GDP, or approximately $1 Trillion extra dollars per year. If bond investors were worried about sustainability already, an extra trillion a year of deficits makes it worse. So they demand even higher interest rates. Debt that is easily financed at 1% rates is not sustainable at 5% rates and a catastrophe at 10% rates – if you have a large debt outstanding.

This is a big part of what happened to Greece and nearly happened to Italy. At low interest rates, they are solvent. At high interest rates, they are not.

Debt crises are like an earthquakes. It's always quiet. People laugh at you for worrying. Buying insurance seems like a waste of money. Until it isn't.

So, the way to think about the dangers of debt is not like a predictable problem that comes to us slowly. View the issue as managing a small risk of a catastrophic problem, like a war or pandemic.

The easy answers are straightforward. Sensible reforms to Social Security and Medicare are on the table. Fix the indexing, improve the incentives for older people to keep working. Convert medicare to a premium support policy.

The harder problems are those less recognized. Underfunded pensions, widespread credit guarantees, and explicit or implicit too big to fail guarantees add tinder to the fire. Dry powder and good credit are invaluable.

Above all, undertake a pro-growth economic policy. We grew out of larger debts after World War II; we can do that again.

You can also buy some insurance. Every American household that takes out a mortgage faces the choice: fixed rate, or variable rate? The fixed rate is a little higher. But it can't go up, no matter what happens. The variable rate starts out lower. But if interest rates rise, you might not be able to make the payments, and you might lose the house. That is what happens to countries in a debt crisis.

For the US, this decision is made by the Treasury Department and the Federal Reserve. The Treasury has been gently lengthening the maturity of its borrowings. The Federal Reserve has been neatly undoing that effort.

Both Treasury and Fed need direction from Congress. The Treasury does not regard managing risks to the budget posed by interest rate rises as a central part of its job, and the Fed does not even consider this fact. Congress needs to decide who is in charge of the maturity structure of US debt, and guide the Treasury. I hope that guidance leans towards the fixed rate plan. By issuing long-term debt – I argue in fact for perpetuities, that simply pay a $1 coupon forever with no fixed roll over date -- and engaging in simple swap transactions that every bank uses to manage interest rate risk, the U.S. can isolate itself from a debt crisis very effectively[20]. But at least ask that fixed or floating interest rate question and make a decision.

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[20] For more details see: A New Structure For U. S. Federal Debt." 2015. In David Wessel, Ed., The $13 *Trillion Question: Managing the U.S. Government's Debt*, pp. 91-146. Washington DC: Brookings Institution Press.
https://www.brookings.edu/book/the-13-trillion-question/ and

As I have warned against focusing too much attention on on-budget spending, so let me warn against too much attention on deficits rather than spending. If you focus on debt and deficits, the natural inclination is to raise tax rates. Europe's experience in the last few years argues against "austerity" in the form of sharply higher tax rates, as always adding to the disincentive to hire, invest, or start innovative businesses.

*Concluding comments*

I have sketched some novel and radical-sounding approaches to restoring robust economic growth. Economic growth, together with commonsense fiscal discipline are keys to solving our budget problems.

This is not pie in the sky. These are simple straightforward steps, none controversial as a matter of economics. And there really is no alternative. Ask of other approaches: Does this at all plausibly diagnose why America's growth rate has fallen in half? Does the cure at all plausibly address the diagnosis? Is the cure based on a reasonable causal channel that you can actually explain to a constituent? Does the cure have a ghost of a chance of having a large enough effect to really make a difference?

You may object that fundamental reform is not "politically feasible." Well, what's "politically feasible" can change fast in this country. This is an exciting time politically. The people are mad as hell, and they're not taking it any more. They are ready for fundamental changes.

Furthermore, it is time for Congress to take the lead. These are properly Congressional matters, and no matter who wins the Presidential election you are unlikely to see leadership in this direction.

Winston Churchill once said that Americans can be trusted to do the right thing after we've tried everything else. Well, we've tried everything else. It's time to prove him right.

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http://faculty.chicagobooth.edu/john.cochrane/research/papers/Cochrane_US_Federal_Debt.pdf. For a clear analysis of the problem, that recommends the opposite action – shortening the maturity structure to take advantage of low rates – see Robin Greenwood, Samuel G. Hanson, Joshua S. Rudolph, and Lawrence H. Summers, "The Optimal Maturity of Government Debt" and "Debt Management Conflicts between the U.S. Treasury and the Federal Reserve," also in David Wessel, Ed., *The $13 Trillion Question: Managing the U.S. Government's Debt*.

Chairman PRICE. Thank you, Dr. Cochrane.

Dr. Bernstein, you are recognized for 5 minutes.

**STATEMENT OF JARED BERNSTEIN**

Mr. BERNSTEIN. Thanks very much, Chairman Price, and thank you, Mr. Ryan, for the invitation to speak to you today.

My testimony makes three simple points. First, as recent labor market, income, poverty, and health coverage data reveal, the American economy actually has significant strengths. The U.S. economy is in the seventh year of a recovery that began in the second half of 2009, meaning that we are in the midst of a relatively long expansion. Businesses began adding jobs on net in late 2010, and since then, private sector employment is up 15 million jobs, the longest streak of total job growth on record.

The tightening job market has meant faster wage growth, and not just for high-wage workers, but for middle- and low-wage workers as well. As my first figure shows, the real wage of blue collar workers in manufacturing and for non-managers and services is up 5 percent since its trough in late 2012.

My second figure uses data from the New York Federal Reserve to show another favorable shift in the recent job market: Middle-skill job growth is now outpacing that of job growth in low- and high-wage occupations.

Now, these labor market trends helped to generate remarkably positive real income gains last year as reported just yesterday by the Census Bureau. My figure 3 shows these real gains were largest at the low end of the income scale, a characteristic pattern of tightening labor markets as they disproportionately lift the incomes of the least advantaged.

I should note that contrary to some of the very negative comments that have been made so far today, the 5.2 percent increase you see in this figure is the fastest 1-year growth in real median household income on record in the Census Bureau series, which dates from the mid-1970s.

Poverty also fell significantly last year, though the poverty rate, at 13.5 percent, is still above its 2007 level.

Figure 4 shows the dramatic decline in the share of Americans without health coverage that began with the implementation of the Affordable Care Act. These very positive developments for middle- and low-income households derive from the one-two punch of tighter labor markets and progressive healthcare policy.

My second point, however, is that trend productivity growth is too slow, and that suggests the need for an investment agenda. Though the U.S. economy is growing faster than most other advanced economies, real GDP growth has been slower in this recovery than in prior ones. An important reason for this outcome is that productivity growth has also slowed. And one reason that productivity growth has slowed is due to less capital deepening, as in not enough investment in capital per hour worked.

Now, recent Congresses, including the current one, have been extremely reluctant to plan and execute public investment in needed areas, including basic research, water quality, human capital, including preschool, and transportation infrastructure.

This is a bipartisan complaint, one I hear regularly from the business community that depends on productivity-enhancing infrastructure.

My final point is that while we face serious fiscal constraints, lower interest rates and slower-growing healthcare costs, even as many more people have health coverage, are providing desperately needed fiscal oxygen. Together, these two factors explain five-sixth of the improvement in the long-term forecast of the debt ratio.

My last figure underscores the health savings point. It shows a 4 percentage point decline in projections for public health spending as a share of GDP between the 2010 projections and the most recent ones, savings that are partly attributable to healthcare delivery efficiencies promoted by the Affordable Care Act.

Given the investment agenda I recommend, I want to express my concern regarding sequestration cuts to nondefense discretionary programs, including education, job training, infrastructure, scientific and medical research, veterans health care, and more. Such funding is projected to fall to historical lows as a share of the economy in coming years.

Similarly, the budget of the House majority features particularly severe cuts in programs to help poor families and others of limited means. Sixty-two percent of its spending cuts come from programs that serve low- and moderate-income families, including Medicaid, nutritional support, and Pell Grants.

Such budgeting would not only lead tens of millions of people to lose health coverage and basic food support, but it would also undermine the positive public investment agenda we very much need.

Thank you.

[The prepared statement of Jared Bernstein follows:]

**Testimony: The need for productivity enhancing public investments**

Jared Bernstein, Center on Budget and Policy Priorities

Chairman Price, ranking member Van Hollen: I thank you and the committee for the invitation to speak to you today.

The purpose of my testimony is to a) provide you with an assessment of strengths and weaknesses of the current US economy, b) offer thoughts about policies that can boost the strengths and reduce the weak spots, and c) examine near- and longer-term fiscal constraints in this context.

**Current economic conditions**

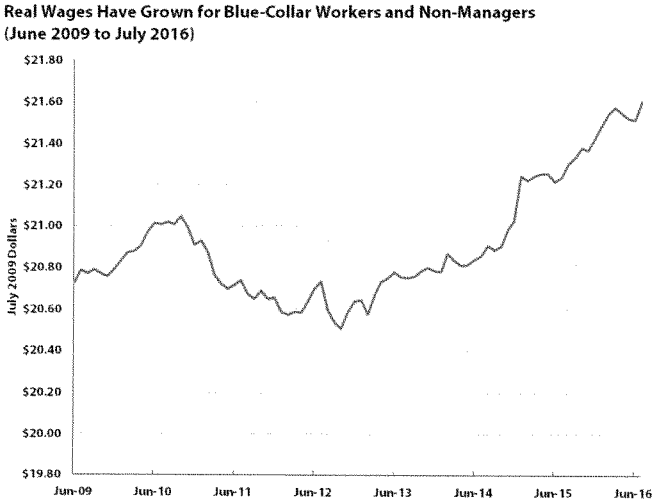
The US economy is in the seventh year of a recovery that began in the second half of 2009 meaning we're in the midst of a relatively long expansion. Since 1960, economic expansions have lasted 5 years on average. Since 1980, they've lasted six years on average.

Countercyclical policies of the Federal Reserve and the federal government (The Recovery Act) were instrumental in helping to pull the economy out of the Great Recession. In a recent review of the impact of these measures, economists Alan Blinder and Mark Zandi write that the spate of fiscal, monetary, and financial interventions "*...dramatically* reduced the severity and length of the meltdown that began in 2008; its effects on jobs, unemployment, and budget deficits; and its lasting impact on today's economy." Along with tax relief and countercyclical anti-poverty interventions, the Recovery Act invested $48 billion in over 14,000 projects repairing highways, transit systems, bridges, and airports.

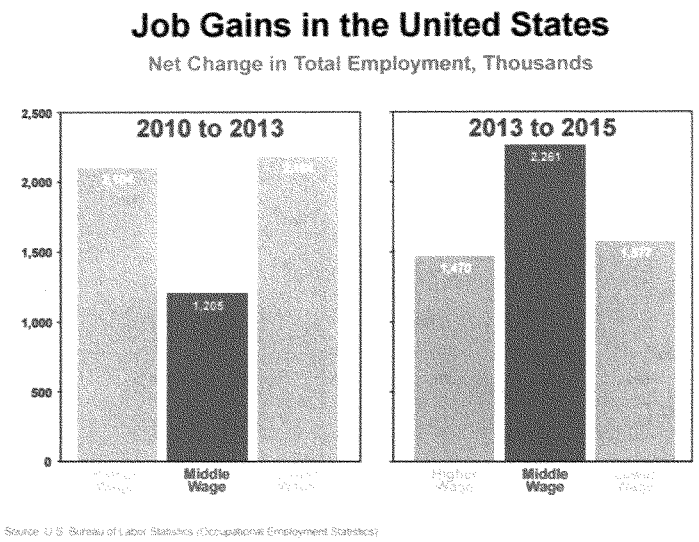
Businesses began adding jobs on net in late 2010 and since then, private sector employment is up 15.1 million jobs, the longest streak of total job growth on record. The unemployment rate has fallen by half since then, from about 10 to about 5 percent.

The tightening job market has meant faster wage growth, and not just for high-wage workers, but for middle- and low-wage workers as well. The real wage of blue-collar workers in manufacturing and non-managers in services is up 5 percent since its recent trough in late 2012 (see Figure 1). Pay is rising for the

lowest-wage workers as well, due both to competition for labor and to state- and city-level minimum wage increases. Economist Elise Gould of the Economic Policy Institute finds a 3.8% real gain for the hourly wages of workers at the 20th percentile of the wage scale between the first half of last year and this year, the largest increase of any decile. Gould attributes this in part to the aforementioned minimum wage increases.



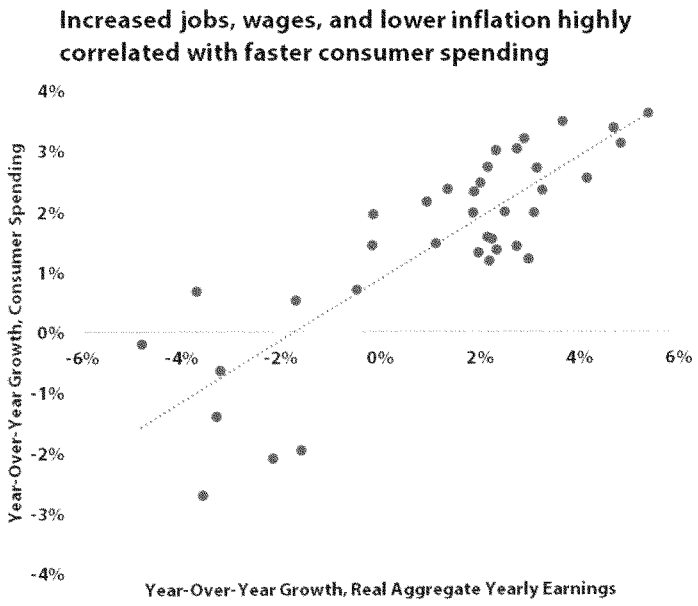

Recent analysis by the New York Federal Reserve finds an important shift in job quality towards middle-class jobs as the labor market recovery has progressed. Figure 2 below shows that while growth in middle-skill jobs (jobs in transportation, construction, administrative support, social and protective services, installation and repair, production, and education) was relatively weak earlier in the expansion relative to job growth in low- and high-wage occupations, since 2013 job growth in this middle category has been the strongest.




Source: U.S. Bureau of Labor Statistics (Occupational Employment Statistics)

The combination of solid, more balanced employment growth, hourly wage growth, and low inflation is boosting incomes and aggregate consumer spending. From 2012-14, aggregate weekly earnings (private employment * average weekly hours * average hourly earnings), adjusted for inflation, grew 2.4 percent per year. Since then, aggregate weekly earnings are up 3.8 percent per year, an economically significant acceleration. The largest factor driving this increase is slower inflation, with faster nominal earnings as a secondary factor.

The scatterplot below (Figure 3) plots the year-over-year growth of real aggregate weekly earnings against that of real consumer spending. The best-fit line highlights the positive correlation: solid employment growth, the tightening job market, and low inflation are feeding back into growing consumer spending, which accounts for just under 70 percent of US GDP. Since 2014, this dynamic has boosted average annual growth of real consumer spending by a percentage point per year, from about 2 percent in the earlier part of the expansion to 3 percent more recently.




Though it took many years for the recovery to reach poor and middle-income households, Census data released the day before this hearing are expected to show significant declines in poverty and an increase in real median household income. The private firm Sentier Research estimates monthly data on real median household income, and they find that after falling steeply in the recession, real median household income is up 9 percent from its June 2011 low-point. At about $57,000 in today's dollars, that brings median household income back up to its pre-recession peak.

These positive trends in jobs, wages, and growth exist amidst numerous challenges in the current economy, many of which I know are of concern to members of the committee.

Though the US economy is doing much better than most other advanced economies, real US GDP growth has been slower in this recovery relative to prior

recoveries. While economists do not have a full explanation for this slowdown, we have identified some important factors in play.

As baby boomers age out of the labor force, labor supply, a key growth input, has slowed. While the labor force participation rate is down about three percentage points since the recession, from around 66 percent to about 63 percent, analysts attribute two of those points to retiring workers aging out of the labor force.

The other "supply-side" growth factor, productivity growth, has also slowed. Between 1995 and 2005, productivity grew just under 3 percent per year. Since then, it has grown 1.2 percent annually. Like many economists, I view this to be our biggest challenge.

Unfortunately, economists have a poor track record forecasting or even convincingly explaining underlying changes in the rate of productivity growth, particularly "multifactor" productivity (mfp) growth, a measure that accounts for increases in output beyond what can be explained by increases in labor and capital inputs alone, such as technological advances or managerial improvements. Between the 1950s and 2007, mfp contributed about 1 percent per year to overall productivity growth. Since then it has contributed half as much. Economists and hard pressed to identify the factors behind this slowdown.

However, the mfp accounts do provide us with one important hint: for decades, capital investment (aka "capital deepening," or capital per hour worked) also added about 1 percent to productivity growth. In recent years, it too is contributing less: 0.6 percent. Here is an aspect of productivity growth that policy may be able to address, a concern I return to below in the context of a potentially productivity-increasing public investment agenda.[1]

We are not at full employment. Though the unemployment rate is about equal to the natural rate estimates of both CBO and the Federal Reserve, other labor market indicators show that slack remains in the job market. The underemployment rate (which includes part-timers who'd rather have full-time jobs), at 9.7 percent, remains a point above what I've estimated to be its full-employment rate, and the share of prime-age workers (25-54) with jobs—their employment-to-population ratio—remains below its pre-recession peak.

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[1] See Economic Report of the President, February 2016, Chapter 2.

To be clear, these measures have all shown cyclical resilience. The employment rate of prime-age workers, for example, has made back 2/3 of its post-recession decline, and the underemployment rate is way down from its 17 percent peak in late 2009. But while we are closing in on full employment, some slack remains.

The recovery has been highly varied by region. Research by Danny Yagan shows that workers in areas that underwent particularly negative economic "shocks" in the Great Recession were still less likely to be employed in 2014 compared to those in places that were hit less hard by the downturn. The Economic Innovation Group's Distressed Community Index elaborates this theme with multiple indicators, including local business creation, poverty rates, and adult employment rates.

As is so often the case, it is also true that this recovery is taking longer to reach disadvantaged groups of people. Unemployment for African-American workers, for example, remains about twice that of whites and, importantly, this result holds when controlling for education levels.

As noted above, middle- and low-wage workers have made recent gains. But over the long term, the increase in economic inequality has often led to stagnant or declining trends in wages, incomes, and wealth. For example, while I noted the increase in real earnings of production workers and non-managers, their real wage level is about where it stood in the late 1970s, despite a near doubling of productivity growth since then.

A final point in this section regards a policy mistake that many governments have made that has contributed to the results just described: the premature pivot to fiscal austerity. Figure 4 below shows real GDP growth in Eurozone countries between 2009 and 2013 plotted against the percentage point change in the cyclically adjusted primary balance as a share of GDP.[2] Countries that applied fiscal austerity—i.e., that tightened their fiscal stance while underlying growth was still weak—saw less real GDP growth than countries more willing to apply the shock absorber of temporary deficit spending.

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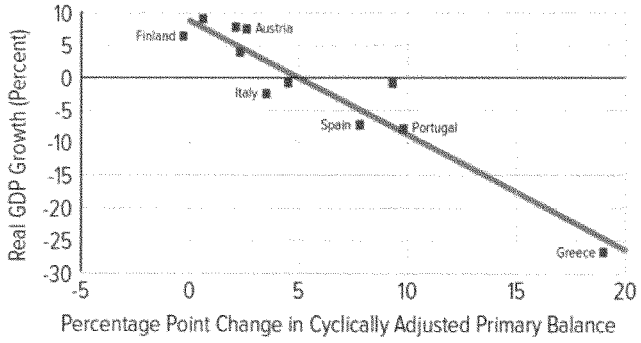
[2] Since we expect deficits to go up to some degree in recessions (e.g., due to lower revenue flows), it is important to measure the extent of austerity against a cyclically adjusted budget deficit. This approach will identify countries that undertook austerity measures yet still ran cyclical deficits.

**Austerity's Consequences in Europe, 2009-2013**

Countries that have reduced their structural deficits more since the Great Recession have experienced less economic growth




Source: Author's analysis of IMF Fiscal Monitor and World Economic Outlook Database data.



One reason we're now doing better than these economies is that U.S. fiscal policy responded aggressively to the Great Recession, as stressed by the Blinder/Zandi analysis cited above. Yet we too pivoted to austerity too soon, both with the premature sunsetting of a temporary paycheck booster (the "payroll tax holiday") in 2013 and with spending cuts that year from sequestration. According to Goldman Sachs, that pivot cost the U.S. economy 1.6 percent of lost GDP in 2013 — over a million jobs lost based on historical relationships and about three-quarters of a point added to unemployment — at a time when the U.S. economy was still trying to recover from the residual pull of the Great Recession. In 2014, when fiscal impulse turned neutral, unemployment fell more quickly and job growth accelerated.

Interestingly, new analysis from researchers at Goldman Sachs shows the importance of a fiscal response to slow growth in general or the next recession in particular. Especially given constraints faced by the Federal Reserve (specifically, the low "Fed funds rate"), the GS analysis underscores the effectiveness of discretionary fiscal response—a temporary increase in deficit spending to offset the downturn—in reducing both the output gap (the gap between potential and actual GDP) and unemployment (they find discretionary spending to be more

effective than the automatic stabilizers). The researchers conclude that their "...findings reinforce the argument of Fed officials that countercyclical fiscal policy could be a valuable complement to monetary policy."[3]

This overview sets the stage for a discussion of the following policy agenda to ensure the continued improvements in areas of economic strength and to meet the challenges just discussed. The following section will then examine the fiscal policy constraints most germane to this committee.

***The need for and benefits of boosting public investment***

Recent Congresses, including the current one, have been extremely reluctant to plan and execute public investments in needed areas. To be clear, this is a bipartisan complaint, one I hear regularly from the business community that depends on productivity-enhancing infrastructure. Often, certain politicians' rhetoric suggests that any public spending targeted at the economy would simply crowd out private investment. But this view misunderstands the basic fact that, as I've argued before, "public spending should be made on goods and services that the private market will either not provide, for sound business reasons, or will not provide in optimal amounts."[4]

Educational services, for example, would surely be under-provided and under-utilized if they were solely under the purview of the private sector. Similarly, since there is often no efficient mechanism for businesses to profit from investments in infrastructure in transportation, water systems, basic research, and more, the economy's productive capacity and our citizens' safety will be diminished if we fail to provide and maintain these investments.

Though there is certainly no evidentiary "smoking gun," many economists suspect that the lack of such public investment is one reason productivity growth (and capital deepening) have slowed. In a recent presentation on these issues, CEA chair Jason Furman argued that "in the absence of public investment, aggregate R&D investment (not only basic research but also applied research and experimental development) is bound to fall short of what is socially optimal." Furman cites research suggesting "that the socially optimal level of R&D

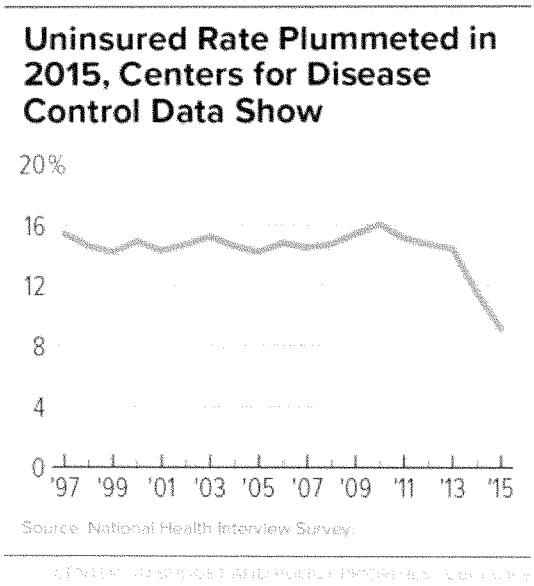
[3] Goldman Sachs, US Economic Analyst: "From the election to the next recession." September 9, 2016.
[4] http://www.cbpp.org/sites/default/files/atoms/files/6-16-15econ_testimony.pdf

investment—the amount that would produce the greatest rate of economic growth—is two to four times greater than actual spending" noting that "this gap is particularly large for basic research, since its role as the "seed corn" of future innovations means that it generates the largest spillovers."

President Obama's most recent budget is particularly strong in the area of public investment with attention to infrastructure, R&D, and innovation. The budget proposes direct investment in, among other areas, basic research, clean energy (the budget doubles current investment levels in clean energy R&D), transportation, water systems, flood, and drought resistance. These proposals are paid for by a tax on carbon (specifically, on oil), which has the added advantage of better reflecting the true social and environmental cost of fossil fuels.

The private sector will also underinvest in national defense, social insurance programs like Social Security, and health care, particularly for low- and middle-income families who often cannot afford to maintain coverage. The facts that hospitals must treat the sick regardless of their coverage status, while Medicaid and Medicare are well-established public coverage systems for the poor and elderly put health care at least partially under the public goods umbrella. Given that reality and the actuarial benefits of pooling, the potential costs savings and administrative scale economies of a relatively large, public, non-profit system of health coverage suggest a robust role for public policy in this space (in fact, about half of health care spending is through public programs).

In this regard, the Affordable Care Act has been remarkably effective. Recent data from the Center for Disease Control reveal that before the ACA was in effect, the uninsured rate was about 16 percent; in the first quarter of this year, they estimate that rate to be 8.6 percent, down by almost half. Figure 5 below shows the striking trend reversal in this variable when the ACA went into effect.




As I will show below, health care reform is also associated with slower cost growth in the sector, an absolutely critical fiscal outcome.

While investments in physical capital and R&D are obviously important and needed, human capital investments can be even more beneficial to both productivity and the economic security of American families. Here too, the President's budget makes necessary investments in both pre-school and college. While these two forms of human capital investment are at opposite ends of the education life-cycle, they're both active sources of stress for American families. Extensive, academic research has shown the lasting "bang-for-the-buck" regarding returns to investments in quality pre-school. And college affordability is a growing challenge for low- and middle-income families, as well as for "millennials" financing their own higher education. The President's "Preschool for All" program ensures access to high-quality preschool; the budget also proposed to strengthen and expand the Pell grant program to promote greater college affordability.

Another form of human capital investment already has considerable bipartisan support. Expanding the Earned Income Tax Credit for low-wage workers who aren't raising children in the home, something both President Obama and Speaker Ryan have proposed, would incentivize work and potentially "help address some of the challenges that less-educated young people (particularly young African American men) face, including low and falling labor force participation rates, low marriage rates, and high incarceration rates." A proposal from Sen. Sherrod Brown and Rep. Richard Neal would help 16.2 million cashiers, cooks, retail salespersons, custodians, waitresses, child care workers, truck drivers, and other hard-working Americans.

***Fiscal constraints and opportunities***

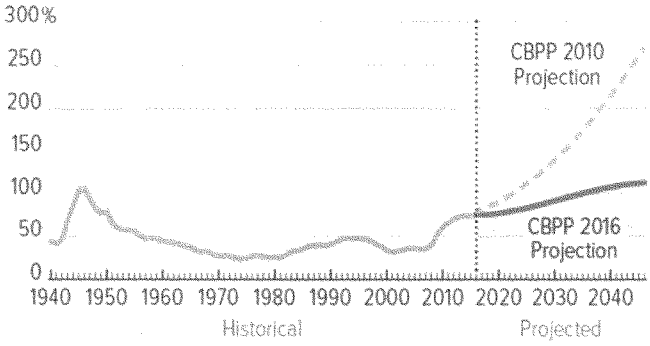
A responsible discussion of the need for the type of investments I suggest in the prior section requires an analysis of our fiscal situation, issues that are clearly germane to this committee.

Recent research by my colleagues at the Center on Budget and Policy Priorities reveals the following:

--As Figure 6 below shows, the federal debt as a share of GDP is expected to be stable for the next few years, after which it is expected to rise. While policy makers will still need to raise revenues to meet our spending obligations in the long run, the figure reveals how much the projections have improved just in the past few years.

**Debt-to-GDP Ratio Virtually Flat Until 2020, Then Rises Gradually**

Debt held by the public as a percent of gross domestic product, 1940-2046




Source: Historical data from the Office of Management and Budget; projections from CBPP based on data from Congressional Budget Office and Social Security and Medicare trustees

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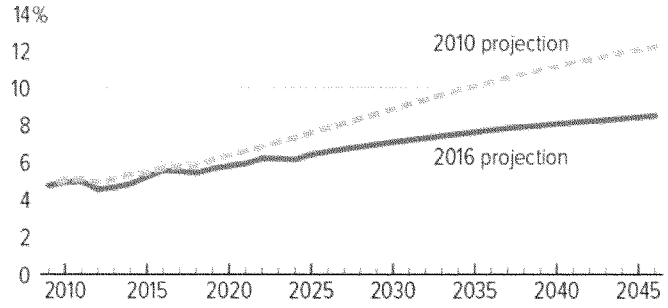
--There are two main causes of this improvement: significant reductions in the growth of health care costs, part of which is considered to be attributable to the ACA, and lower projected interest rates. Together these two factors explain five-sixths of the improvement.

--Figure 7 below underscores the health savings point. It shows a four percentage point decline in projections for public health spending as a share of GDP between the 2010 projections and the most recent ones.

**Projected Costs of Major Health Programs Have Fallen Significantly**

2010 projection vs. 2016 projection, as a percent of gross domestic product




Note: The 2010 projection encompasses Medicare and Medicaid; the 2016 projection encompasses Medicare, Medicaid, the Children's Health Insurance Program, and the new marketplace subsidies.

Source: CBPP based on Congressional Budget Office and Medicare trustees data from 2009 (for the 2010 projection) and 2016 (for the 2016 projection)

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--Recent high-profile announcements of insurers pulling out of the health-care exchanges has led to criticism regarding rising premium costs for the 6 percent who get coverage through the "individual" (non-group) market. However, it is important to recognize, as in the figure above, that health costs, including premium expenses, have long been rising. So the question is not "will they go up," but "how much will they go up relative to what we'd have expected in the absence of the ACA?" Recent research finds that the price of health insurance in the exchanges remain between 12 percent and 20 percent below what CBO initially predicted. It is also important in this regard to remember that actual out-of-pocket premium costs for the vast majority in the exchanges (about 85 percent) reflect not the sticker price, but their post-premium-subsidy price.

--As is widely understood, our aging demographics will put pressure on retirement security programs over the next few decades. Social Security spending is expected to climb from about 5 percent of GDP to 6 percent by 2046, and Medicare, from about 3 to about 5 percent. These are not trivial increases, but they are far more

manageable than the alarmist rhetoric often heard around them makes them seem. Because of the health care cost savings noted above, for example, Congress could close all of the projected 75-year funding gap for Medicare by raising its payroll tax from 1.45 percent each for employers and employees to about 1.8 percent. Similarly, Social Security is projected to remain solvent until 2034, when the trust funds would still be able to pay out three-fourths of scheduled benefits. Its long-run solvency can and should be achieved primarily through revenue increases, while any benefit changes should be carefully crafted to protect low-income elderly people and those with disabilities.

--One area where Congress has cut spending, often through the imposition of caps on appropriations, has been on the discretionary side of the budget (both defense and non-defense programs). Given the investment agenda I recommend and the fact that about one-fifth of non-defense discretionary (NDD) programs help Americans with low and moderate incomes, underfunding NDD programs — which include education, job training, infrastructure, scientific and medical research, veterans' health care, child care, and more — is of particular concern. Yet this funding is projected to fall to historical lows as a share of the economy in coming years.

Continued health care savings achieved by careful, granular analysis of how ACA reforms are squeezing out inefficiencies in the health-care delivery system and building on what works can help us keep the debt-to-GDP ratio on a more sustainable path. The President's budget cuts more than $400 billion from Medicare spending over the next decade as well, from reforms targeted at providers, insurance companies, and prescription drugs. Raising revenues through the types of progressive tax ideas I described in a recent analysis, which include closing loopholes that waste needed revenues while exacerbating after-tax inequality, is also essential.

To the extent that the investment agenda I recommend above will help to boost productivity growth, it is also worth noting that a 0.5 percent increase in the rate of productivity growth is projected to lower the debt/GDP ratio by 30 percentage points over the next 30 years.

These ideas signal the way forward. They stand in stark contrast to the ideas put forth in the recent House majority's budget. Noted budget analyst Bob Greenstein

found that the House budget "...would decimate large swaths of the federal government, shrinking spending outside Social Security, Medicare, and interest payments to 7 percent of GDP by 2026 — less than three-fifths of its average of the past 40 years and only a little more than half its average level under President Reagan. It features particularly severe cuts in programs to help poor families and others of limited means...If the policies in this budget were to become law in the years ahead, our nation would almost certainly become more mean-spirited and divided, with more poverty, inequality, and severe hardship and less opportunity."

Further CBPP analysis finds that 62 percent of the spending cuts in the House budget come from programs that serve low- and moderate-income families, including Medicaid, nutritional support, and Pell grants. Such budgeting would not only lead tens of millions of people to lose health coverage and basic food support, but would also fly in the face of the positive, public investment agenda we very much need.

***Conclusion***

The current US economy has both many strengths and some important weaknesses. While macroeconomic growth is lower than in past recoveries, we are significantly outperforming other advanced economies and our labor market is moving towards full employment. That, in turn, is pushing up earnings and supporting relatively strong consumer spending.

[New Census numbers are expected to show improvements in poverty rates, median incomes, and health coverage.]

Where we have serious problems — ones that predated the Great Recession—is in slowing productivity growth and rising inequality. While economists have limited success in understanding what drives productivity, many of us believe that greater investment in public goods—from basic R&D to physical and human capital—would be likely to help. Either way, especially in the case of public infrastructure, we must invest in maintenance and upkeep, a view that should not be controversial in any partisan sense. My testimony highlights many good ideas from President Obama's latest budget in these areas, ideas I hope the committee's leadership will consider.

Our fiscal outlook has improved relative to recent projections by slowing health care costs and lowering expected interest rates. Regarding the former, the ACA is clearly helping to sharply reduce the uninsured rate. It also looks to have contributed to the fiscally important deceleration of health care spending.

Finally, recent budgets by the House majority push the wrong way by failing to invest in the future well-being of American households and undermining needed investments in people, infrastructure, and basic research, even though all of those investments have the potential to boost productivity growth and some would likely reduce inequality.

Chairman PRICE. Thank you, Dr. Bernstein.

Dr. Holtz-Eakin, you are recognized for 5 minutes.

**STATEMENT OF DOUGLAS J. HOLTZ-EAKIN**

Mr. HOLTZ-EAKIN. Thank you Chairman Price, Ranking Member Ryan, and members. It is a privilege to be here today. My written statement makes three points at length. I will make them quickly and then look forward to your questions.

Point number one is that the U.S. can and must do better on both the Federal fiscal outlook and the economic growth outlook, and they are intimately related.

Point number two is that one part of doing better is to change the kind of policy mix away from temporary targeting measures associated with stimulus to long-term structural changes to help the economy grow at a faster trend rate growth.

And then number three is a list of key structural reforms that I think are important for the Congress to consider.

Let me talk about each in turn.

On the growth and budget challenges, there are many ways to characterize this. You have heard some already. I think on the growth front, the key fact is that from the end of World War II to 2007, the U.S. economy grew fast enough on average, about 3.2 percent, that even with population growth, total GDP per person, a rough measure of the standard of living, would double on average every 35 years.

And so in one person's working career, you can imagine the standard of living doubling, and that would be the route to whatever your version of the American dream might be—sending a child to school, to college for the first time, or a vacation home, whatever.

At current projected rates of growth, 2 percent, combined with projections of population growth, that measure of the standard of living would double roughly every 70 to 75 years. And so the pace at which we achieve the American dream has cut down dramatically and is disappearing over the horizon. I think this is the preeminent policy challenge of our time.

It is closely related, of course, to the budget challenge, because, as the chairman pointed out, every tenth of a percentage point of faster growth translates into about $300 billion in budgetary improvement over the 10-year budget window.

And we have a dire fiscal outlook, one in which, the CBO correctly points out again and again, the debt levels are rising at unsustainable rates, one where, over the next 10 years, we are going to have the deficit rise to be $1.2 trillion in 2026, where interest will be $700 billion, over half of that deficit, where the debt-to-GDP ratio is going to continue to climb and be 80 percent.

All of these things are quite troubling and something that the Congress should take on. And in doing so, they will have to do some structural reforms, and those reforms will have to start with the entitlement programs.

There are really three reasons to worry about the entitlement programs. The first is genuinely the budget outlook. These are programs that are growing at, say, Social Security 6 percent, or Medicare a little under 6 percent, 5.9 percent, when the nominal econ-

omy is going to grow at something like 4 percent. So they are growing faster than resources can permit to support them. But that is the green eye shades argument, and it will, I promise you, having made it my entire career, resonate not one bit with anyone.

So the second reason to fix them is that these programs on their merits are not good programs. Our Social Security program is kept solvent on the books, and the trustees are permitted to issue reports, because we have promised to cut benefits 25 percent across the board when the trust fund exhausts in a little under two decades. That is a horrific way to run a pension program.

And so if you go through Social Security, Medicare, Medicaid, the Affordable Care Act, the large drivers of the spending increase that is our deficit problem, those programs all could be improved, they are not delivering at sensible costs the services that we have promised.

And the third reason is that the explosion in entitlement spending and the associated rise in debt invites economic problems.

If you are an investor looking at the United States and you see a fundamental mismatch between spending growth and revenues, you know one of three things is going to happen.

One, the U.S. could do nothing, there will be a predictable fiscal crisis, and that is not a pro-growth policy.

Number two, you could try, as that crisis approaches, to close that gap quickly by raising a trillion dollars in taxes each year, and that is hardly a pro-growth policy.

Or three, you can take on the spending challenge that is the entitlement programs, and that would be a way to, in a pro-growth fashion, address the fiscal challenge and invite investment and expansion in the United States.

So this is something that is central to our success. It is also the way to free up the resources for national security, basic research, infrastructure, education, all of the things the Founders saw as the basic role of the Government of the United States. Those are being squeezed out of the budget as we speak.

So I think that is where it starts, and it goes through a list of tax reforms, regulatory reforms, education reforms, trade agreements, immigration reforms, all of which could allow the economy to perform much better and which should be on the agenda for the Congress.

So I look forward to your questions. I would be happy to elaborate on any of those.

[The prepared statement of Douglas J. Holtz-Eakin follows:]

# Growing Risks to the Budget and Economy

Testimony to the U.S. House
Committee on the Budget

Douglas Holtz-Eakin, President
American Action Forum*

September 14, 2016

*The opinions expressed herein are mine alone and do not represent the position of the American Action Forum. I thank Gordon Gray for his assistance.

**Introduction**

Chairman Price, Ranking Member Van Hollen and members of the Committee I am honored to have the opportunity to testify on the vital topics of the economic and budgetary outlook. These topics are closely interlinked; going forward better budgetary outcomes will require stronger economic growth and more rapid trend economic growth will depend, in part, on improved budget policies.

In my testimony, I wish to make three simple points:

- More rapid trend economic growth is the most pressing policy issue facing the Congress,
- Improved economic performance will require moving away from a policy regime characterized by high taxes, extensive regulation and temporary, targeted "stimulus" toward permanent structural reforms, and
- Structural reforms to entitlements, taxes, regulations, education, immigration, and trade agreements are the most promising policy mix to restore economic growth, generate rises in the standard of living, and lead to a sustainable budget outlook.

Let me discuss these in turn.

**The Growth Challenge**

More rapid trend economic growth is the preeminent policy challenge. The nation has experienced a disappointing recovery from the most recent recession and confronts a projected future defined by weak economic growth. Left unaddressed, this trajectory will result in failing to bequeath to the next generation a more secure and more prosperous nation.

Even more troubling than the recent past is the outlook. The Congressional Budget Office (CBO) projects that the long run potential for U.S. economic growth is 2.0 percent. This rate of growth is below that needed to improve the standard of living at the pace typically enjoyed in post-war America. During the early postwar period, from 1947 to 1969, trend economic growth rates were quite rapid. Gross Domestic Product (GDP) and GDP per capita grew at rates of 4.0 percent and 2.4 percent, respectively. Over the subsequent two and one-half decades, however, these fell to 2.9 percent and 1.9 percent, respectively. During the years 1986 to 2007, trend growth in GDP recovered to 3.2 percent, while trend GDP per capita growth rose to 2.0 percent.

These were rates quite close to the overall historic performance for the period. These distinct periods and trends should convey that the trend growth rate is far from a fixed, immutable economic law that dictates the pace of expansion, but rather subject to outside influences including public policy.

More rapid growth is not an abstract goal; faster growth is essential to the well-being of American families.

Table 1
The Importance of Trend Growth to Advancing the Standard of Living

| Trend Growth Rate Per Capita (%) | Years for Income to Double |
|---|---|
| 0.50 | 139 |
| 0.75 | 93 |
| 1.00 | 70 |
| 1.25 | 56 |
| 1.50 | 47 |
| 1.75 | 40 |
| 2.00 | 35 |
| 2.25 | 31 |
| 2.50 | 28 |
| 2.75 | 26 |
| 3.00 | 23 |

The trend growth rate of postwar GDP per capita (a rough measure of the standard of living) has been about 2.1 percent. As Table 1 indicates, at this pace of expansion an individual could expect the standard of living to double in 30 to 35 years. Put differently, during the course of one's working career, the overall ability to support a family and pursue retirement would become twice as large.

In contrast, the long-term growth rate of GDP in the most recent CBO projection is 2.0 percent. When combined with population growth of 1.0 percent, this implies the trend growth in GDP per capita will average 1.0 percent. At that pace of expansion, it will take 70 years to double income per person. The American Dream is disappearing over the horizon.

Economic Growth and the Federal Budget

A second benefit of improved economic growth is budgetary. The federal government faces a problematic budgetary future, largely due to long-term pension, health, and other spending promises coupled with recent programmatic expansions. The core, long-term issue has been outlined in successive versions of the CBO's Long-Term Budget Outlook. In broad terms, the inexorable dynamics of current law will raise federal outlays from an historic norm of about 20 percent of GDP to upwards of 30 of GDP. Any attempt to keep taxes at their historical norm of about 18 percent of GDP will generate an unmanageable federal debt spiral.

This depiction of the federal budgetary future and its diagnosis and prescription has all remained unchanged for at least a decade. Despite this, lasting action (in the right direction) has yet to achieve the force of law.

In the past several years, the outlook has worsened significantly. Over the next ten years, according to the CBO's latest baseline projections, the deficit will average over $850 billion. Ten years from now, in 2026, the deficit will be $1.2 trillion. As a result of the nation's irresponsible spending binge, in 2026 debt held by the public will have more than doubled from its pre-financial crisis level in 2007 to over 80 percent of GDP and will continue its upward trajectory.

High levels of indebtedness, coupled with weak projected growth, crowd out productive investment and further suppress economic growth. This combination eventually leads to a spiral of higher interest rates, debt service payments, and damaging fiscal policy. Within the current budget window, interest payments make up more than half, meaning the existing debt portfolio is already constraining policymakers and jeopardizes the budget's capacity to absorb another recession or geopolitical crisis.

Despite the nation's significant budgetary challenges, even incrementally higher economic growth can ameliorate the fiscal outlook by increasing taxable income and suppressing reliance on the social safety net. According to the CBO, a persistent 0.1 percentage point increase in the real growth rate translates into about $300 billion in budget savings.[1] A robust pro-growth agenda could realize multiples of this "rule of thumb" in deficit reduction.

**A Policy Regime for Faster Trend Growth**

It is desirable to change the style of policy to produce better growth. Economic growth policy is more a philosophy than a piece of legislation. It is a commitment at every juncture in the policy process to evaluate tradeoffs between social goals, environmental goals, special interest goals and economic growth – and err on the side of growth. The Obama Administration contemplated a health care law that raised $700 billion in new taxes and created two new entitlements at a time when the spending-swollen federal debt was already exploding. The White House also chose social objectives over growth. It unleashed the Environmental Protection Agency, choosing a green agenda over growth. It launched the National Labor Relations Board on a union agenda at odds with growth.

The second flaw in recent policy approaches has been its misguided reliance on temporary, targeted piecemeal policymaking. Even if one believed that countercyclical fiscal policy ("stimulus") could be executed precisely and had multiplier effects, it is time to learn by experience that this strategy is not working. Checks to households (the Economic Stimulus Act of 2008), the gargantuan stimulus bill in 2009 (American Recovery and Reinvestment Act), "cash for clunkers" (the Car Allowance Rebate System), tax credits for homebuyers (the Federal Housing Tax

Credit, the HIRE Act (consisting of a $13 billion payroll hiring credit, expensing of certain investments, $4.6 billion for schools and energy), the Small Business Jobs Act of 2010, and the state-local bailout Public Law 111-226 ($10 billion in education; $16 billion in Medicaid) have all failed to generate adequate growth.

As the policy regime of macroeconomic fiscal (and monetary) fine-tuning backfired in the 1960s and 1970s, leaving behind high inflation and chronically elevated unemployment, it is working no better in the 21st century. Instead, there should be a commitment to raising the long-term growth rate of the economy through permanent reforms.

This Committee can contribute greatly to moving toward a better, long-term oriented set of policies. The founders recognized that the government had important roles in national security, basic research, education, and infrastructure. Congress should reflect these principles in their budgets. As it turns out, however, these areas are funded in the annual appropriations bills – precisely the area of the budget that was the focus of caps in the Budget Control Act. Growth-oriented policymakers should reject mechanistic budgeting like caps in favor of funding core roles of government contingent on quality analysis and outcomes.

In defense, budgets should reflect the capabilities needed to address the threats identified in the Quadrennial Defense Review – not simply a desire to spend more without justification. Similarly, infrastructure projects should receive funding only if a rigorous analysis shows they improve economic outcomes. Education dollars should reward actual achievement and progress, while health dollars should be contingent on quality outcomes. And most importantly, poverty programs must be re-oriented away from a focus on making sure enough money gets to the poor and towards the real solution to poverty: economic self-sufficiency.

The key issue is that it is a budget strategy focused on annual funding of programs consistent with our founding principles and focused on quality outcomes.

Of course, something has to give and the obvious candidates are the large, and ever-growing, entitlement programs. Reforming entitlement programs turns out to be the right thing to do for reasons beyond budget math. The U.S. economy is characterized by big federal debt – now 75 percent of GDP and rising unsustainably – and poor growth. A lesson of other countries faced with this unpleasant economic cocktail is that the route to better economic performance is to keep taxes low and cut spending to deal with the budget imbalance. But not all spending is created equal. Instead, it is better to cut transfer programs and preserve core functions of government. The historical lesson dovetails perfectly with a pro-growth budget strategy.

Importantly, the large entitlement programs need reform in their own right. Social Security is a good example. The "plan" – the law of the land – will cut across the board the retirement checks of those in retirement by 21 percent in two decades.

That is a disgraceful way to run a pension system. It is possible to reform Social Security to be less costly overall and financially sustainable over the long term.

Similar insights apply to Medicare and Medicaid, the key health safety nets for the elderly and poor. These programs have relentless appetites for taxpayer dollars yet do not consistently deliver quality outcomes. Reforms can address their open-ended draws on the federal treasury and improve their functioning at the same time.

The growth-oriented fiscal strategy will re-orient spending priorities away from dysfunctional autopilot spending programs and toward core functions of government. It will focus less on the dollars going into programs and more on the quality of the outcomes of those programs. It will do so because it is the principled approach; because it coincides with the best strategy to deal with the debt and growth dilemmas; and because it will force a restructuring of the entitlement programs to generate a quality social safety net.

**Structural Reforms to Enhance Trend Growth**

Entitlement Reform and a Sustainable Debt Trajectory

The policy problem facing the United States is that spending rises above any reasonable metric of taxation for the indefinite future. Period. There is a mini-industry devoted to producing alternative numerical estimates of this mismatch, but the diagnosis of the basic problem is not complicated. The diagnosis leads as well to the prescription for action. Over the long-term, the budget problem is primarily a spending problem and correcting it requires reductions in the growth of large mandatory spending programs—entitlements Social Security and federal health programs.

At present, Social Security is running a modest cash-flow deficit, increasing the overall shortfall. There are even larger deficits and future growth in outlays associated with Medicare, Medicaid, and the Patient Protection and Affordable Care Act (ACA). These share the demographic pressures that drive Social Security, but include the inexorable increase in health care spending per person in the United States.

For this reason, an immediate reform and improvement in the outlook for entitlement spending would send a valuable signal to credit markets and improve the economic outlook. The spending future outlined above represents a direct impediment to job creation and growth. The United States is courting further downgrade as a sovereign borrower and a the ensuing increase in borrowing costs it would generate. Any sharp rise in interest rates would have dramatically negative economic impacts; even worse an actual liquidity panic would replicate (or result in an experience worse than) the experience of the fall of 2008.

Alternatively, businesses, entrepreneurs and investors perceive the future deficits as an implicit promise of higher taxes, higher interest rates, or both. For any employer contemplating locating in the United States or expanding existing facilities and payrolls, rudimentary business planning reveals this to be an extremely unpalatable environment.

In short, entitlement reform is a pro-growth policy move at this juncture. As summarized by an American Action Forum paper, research indicates that the best strategy to both grow and eliminate deficits is to keep taxes low and reduce public employee costs and transfer payments.[2]

The Role of Infrastructure in Faster Trend Growth

Among the most common policy proposals are those that increase federal outlays on "infrastructure" (defined in a variety of ways), with the assertion that it will generate more rapid economic growth. This would be true if infrastructure spending had a long-term impact on productivity. Over the long-term, higher productivity—the ability to generate more output and income from each dollar of capital or hour of work—is the key to higher labor earnings and improved standards of living. Because higher productivity is so central to economic growth, it must be an explicit concern – rather than a presumed outcome – when contemplating increased infrastructure spending. The notion that investing in infrastructure will generate productivity has an intuitive appeal: imagine an economy with trucks but no roads, or trains and no tracks. Moreover, there are countless testimonials across the country asserting that a new road, or airport, or other project generated a boom in economic activity.

High-productivity infrastructure investments can generate improvements in economic well being by increasing connectivity or reducing congestion or providing a necessary productive input. If so, this is a critical dimension of improving long-term employment, allowing labor to enhance its productivity at lower cost and encouraging private capital investments in structures, equipment, and technologies to reap higher returns from American industry.

But there are reasons to be cautious as well. First, the test for a high-productivity public investment is that it should generate a rate of return to society that exceeds the market return in the private sector. The resources for any public investment are ultimately drawn from the private sector through taxes and fees, or in some cases by borrowing from the private sector. In each case, the dollars used to make these investments constitute foregone opportunities to make other market investments.

To meet a productivity test, federal investments should have a greater impact in terms of raising future standards of living than other uses of funds as measured by the return on other market investments. Thus, to ensure the best use of taxpayer dollars, government must channel funding to the projects that offer the highest returns to society.

That means choosing programs that do the most to enhance long-term productivity. A second concern is that politics interfere with making sure that the right projects are chosen. Not every road, high-speed rail, or water project can meet the test. Will public policy actually consist of a portfolio of well-selected and thoughtfully targeted investments that may make a substantial contribution to aggregate economic productivity?

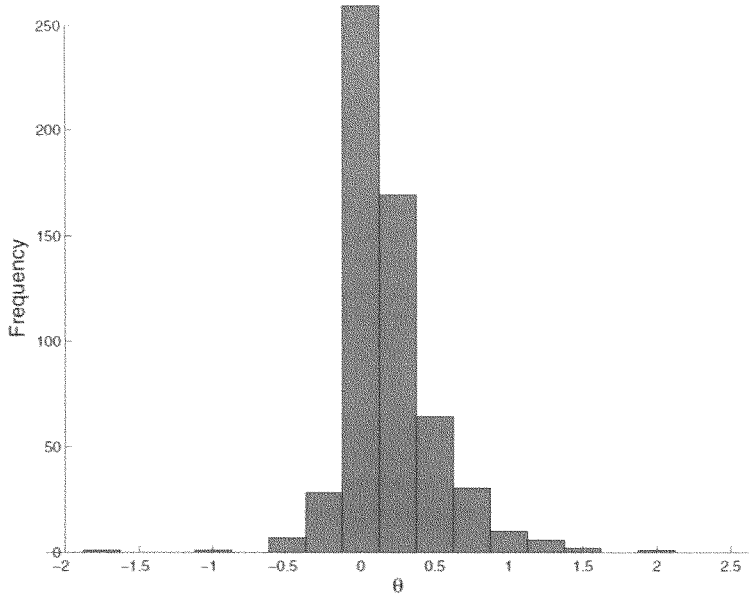
A third issue is that any shift in resources creates losers as well as winners. A dollar spent on any project means a dollar less to spend on another project. In an environment of finite resources, funding infrastructure projects will generate some productivity, but at the expense of jobs that could have been created in other sectors had the money been used differently. This is why reform to direct government spending to the most productive investments is so crucial. Even if infrastructure always raises productivity, its net effect on the economy as a whole—taking into account the benefits that will be foregone as a result of reduced public spending in other areas of the economy—will be positive only if government investments are rigorously selected to meet productivity criteria.

Shifts of investment and employment occur not just across industries and sectors, but also across counties and states. Even a sub-optimal investment is likely to be able to show some positive output impacts, especially in the short-term, from the perspective of the winning state or city. But from a national perspective and over time these gains could be—and often are—outweighed by losses elsewhere. Federal infrastructure policy should guide federal dollars so as to produce a net gain for the economy as a whole, rather than for one area or region in the short-term.

The construction of the Interstate Highway network, for example, created jobs near interstate interchanges as new and existing businesses were drawn to locations where they could take maximum advantage of the accessibility afforded by the new highway system. Towns that were bypassed by the Interstates, however, lost jobs as some of their businesses moved to these new locations and as other businesses that stayed "died on the vine" because they could no longer compete. Nevertheless, the federal investment creating the interstate highway network was justified because overall gains exceeded overall losses.

*Evidence*
The histogram below, reproduced from Bom and Ligthart [2014] summarizes 578 estimates from 68 studies that cover various time periods, nations or states, levels of government (municipal, state, federal), and types of public capital.

**Figure 1**




The histogram shows the distribution of what the researchers call "θ", the percentage increase in output for a comparable percentage rise in infrastructure. As one can see by inspecting the figure, there are large positive (over 2.0) and large negative (below -1.5) examples in the literature. However, the bulk of the estimates cluster closely around zero. The overall shape of the distribution does suggest a greater chance of positive impacts than negative ones, so a consensus estimate of the elasticity might be slightly above zero.

What does this mean? Government general capital is roughly $10 trillion, according to the Bureau of Economic Analysis of the Department of Commerce, so $100 billion for additional infrastructure spending is roughly a (100/10000 =) 1.0 percent increase. Using a productivity elasticity of, say, 0.03, that suggests that the level of productivity and output eventually rises by 0.03 percent. Since GDP is roughly $18 trillion, then $100 billion in extra infrastructure spending generates $5.4 billion in extra output per year, which is hardly a productivity boom.

*Tax Reform*

The U.S. tax code is broadly viewed as broken and in need of repair, and for good reason – it hasn't been overhauled in 30 years. Whereas this administration would instead make the tax system worse – adding higher rates and new taxes, including on the middle class – the Committee should support a fundamental overhaul of the

nation's tax system.[3] A sound reform of the U.S. tax code is an essential element of any pro-growth strategy, and could substantially increase trend economic growth, boosting the economy and tax revenue.[4]

Fundamental modernization and simplification of the tax system has been an elusive dream for Congresses and administrations over the past 30 years, and a wholesale reform of the code is invariably difficult during an election.

The last time the United States undertook a fundamental tax reform was with the Tax Reform Act of 1986 (TRA). If history is any guide, a 1986 style reform offers faster economic growth. This is borne out by retrospective analysis of the TRA that found that the 1986 tax reform produced about one percentage point higher growth over a long period. Further studies have shown that the negative relationship with higher marginal rates and taxable income, hours worked, and overall economic growth.[5]

A more robust reform along the lines proposed by the recent task force proposal offers even greater growth benefits. Highly respected economists David Altig, Alan Auerbach, Laurence Kotlikoff, Kent A. Smetters, and Jan Walliser, simulated multiple tax reforms and found GDP could increase by as much as 9.4 percent from tax reform.[6] The highest growth rate was associated with a consumption-based tax system that avoided double-taxing the return to saving and investment. The study also simulated a "clean," revenue-neutral income tax that would eliminate all deductions, loopholes, *etc.*; and lower the rate to a single low rate. According to their study, this reform raised GDP by 4.4 percent over ten years—a growth effect that roughly translate into about .4 percent higher trend growth, resulting in faster employment and income growth.

Regulatory Reform

Another important step is a new approach to regulation. The recent rapid increase in burdensome regulations comes at a considerable cost to American businesses, consumers, workers, and the economy in general. Over the last decade the federal government imposed over $962 billion in compliance costs and an estimated 698 million net paperwork burden hours on American businesses and individuals.[7] These are not just abstract cost but take a real toll on employment. Just $1 billion in new regulation burden is associated with a 3.6 percent decline in industry employment.[8] The cumulative effect of regulation is significant and that policymakers should take existing regulatory burdens into account when writing new rules. A comprehensive re-evaluation of existing regulations, starting with the most burdensome, duplicative, and costly, should be undertaken to limit the

Immigration reform

Immigration reform can raise population growth, labor force growth, and thus growth in GDP. In addition, immigrants inject entrepreneurialism in the U.S.

economy.[9] New entrepreneurial vigor embodied in new capital and consumer goods promises a higher standard of living.

Without this policy effort, low U.S. birth rates will result in a decline in the population and overall economy. A serious, economically-based immigration reform would raise the pace of economic growth substantially, raise GDP per capita, and reduce the cumulative federal deficit.

Education reform

Education in America is in crisis. Of 100 children born in 1983 who started kindergarten together in 1988, 30 of them would not have graduated on time in 2001. Of the 70 who would have graduated, 50 would start college, and just 28 of those 100 kindergartners would have a college degree by spring 2007. But it gets worse.

Our nation continues to report significant achievement gaps between students based on race and socioeconomic factors. On average, students of color have a much lower, 67 percent likelihood of graduating. Of those students of color who do graduate, they typically exit high school with the functional equivalent of an 8th or 9th grade education. Despite more than $16 billion annually in targeted federal aid, our poor neighborhoods usually lack fundamental resources such as great teachers. This feeds an embarrassingly persistent and worsening gap between our students' performance and that of students in the rest of the industrialized world. The Organisation for Economic Co-operation and Development (OECD) found that in 2006, America ranked 25th out of 30 industrialized countries in math and 24th in science.

In the past, only parents with enough money could choose a school outside their government assignment – and money can still buy escape. However, around the "assigned sector" of public education, there is a whole other world slowly emerging. Increasingly, there are more choices in the public sector that families can access, among them public charter schools and access to private schools with scholarship or tax credit support.

The tragedy is that the government near-monopoly has prevented these new choices from being fully implemented; from throwing open doors to the students that need them most. While thousand of parents have accessed choice programs immediately as they become available, thousands more sit on waiting lists while their children and their hopes languish. Better options driven by parental choice can expand as quickly as we can provide them the students and the resources to do so.

Trade Agreements

Trade is an important driver of productivity and economic growth in the U.S. and globally. Trade creates jobs, increases GDP, and opens markets to American producers and consumers. The U.S. is the world's largest participant in global trade—with $1.5 trillion in exports of goods and services and imports of over $2 trillion—and has established free trade agreements with 20 countries.[10] The U.S. is the largest exporter of services in the world.[11] Trade supports over 11 million jobs in the U.S.[12] and U.S. exports comprise a full 13 percent of U.S. GDP.[13]

These numbers are significant, and pursuing a robust trade agenda in 2016 offers the opportunity for improved economic growth. The Trans-Pacific Partnership (TPP), finalized in 2015, is on balance a pro-growth trade agreement. Two other trade agreements, the Transatlantic Trade and Investment Partnership (TTIP) and Trade in Services Agreement (TiSA), are currently being negotiated and offer opportunities for expanding global markets. TTIP would fully open EU markets, boost GDP by $125 billion, and create more than 740,000 U.S. jobs.[14] TiSA, the first trade agreement in services since 1995, could bind together 70 percent of the world's $55 trillion services market.[15] If effectively negotiated, these agreements offer significant economic potential.

**Conclusion**

More rapid trend economic growth is the most pressing federal policy issue. Fortunately, the roots of subpar growth are found in subpar growth policies. Changing the policy strategy to focus on permanent structural reforms to entitlement, tax, regulatory, immigration, education and trade polices holds the promise of improving the economic outlook for this generation and those that follow.

**NOTES**

[1] https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49892-Outlook2015.pdf
[2] http://americanactionforum.org/insights/repairing-a-fiscal-hole-how-and-why-spending-cuts-trump-tax-increases
[3] http://americanactionforum.org/insights/ooops
[4] http://americanactionforum.org/research/economic-and-budgetary-consequences-of-pro-growth-tax-modernization
[5] See: Feldstein, Martin, "The Effect of Marginal Tax Rates on Taxable Income: A Panel Study of the 1986 Tax Reform Act." *Journal of Political Economy,* June 1995, (103:3), pp 551-72; Carroll, Robert, Douglas Holtz-Eakin, Mark Rider and Harvey S. Rosen, "Income taxes and entrepreneurs' use of labor." *Journal of Labor Economics 18(2)* (2000):324-351; Prescott, Edward C., "Why do Americans Work So Much More Than Europeans." Federal Reserve Bank of Minneapolis July 2004; Skinner, Jonathan , and Eric Engen. "Taxation and Economic Growth." National Tax Journal 49.4 (1996): 617-42; Romer, Christina D., and David H. Romer, "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks." National Bureau of Economic Research NBER Working Paper No. 13264 July 2007 Web.http://www.nber.org/papers/w13264
[6] Altig, David, Alan J. Auerbach, Laurence J. Kotlikoff, Kent A. Smetters and Jan Walliser, "Simulating Fundamental Tax Reform in the United States." *American Economic Review, Vol. 91, No. 3* (2001), pp. 574-595
[7] https://regrodeo.com/
[8] Batkins and Gitis, "The Cumulative Impact of Regulatory Cost Burdens on Employment".
[9] Holtz-Eakin, "Immigration Reform, Economic Growth, and the Fiscal Challenge."
[10] https://www.census.gov/foreign-trade/balance/c0004.html; https://ustr.gov/trade-agreements/free-trade-agreements
[11] https://www.wto.org/english/res_e/booksp_e/world_trade_report15_e.pdf
[12] http://www.trade.gov/mas/ian/build/groups/public/@tg_ian/documents/webcontent/tg_ian_005500.pdf
[13] http://data.worldbank.org/indicator/NE.EXP.GNFS.ZS
[14] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/245085/TTIP_and_the_50_States_GovUK.pdf
[15] https://ustr.gov/TiSA

Chairman PRICE. I thank all three of you for your opening statements. And I think that the prepared remarks that you had are very enlightening in many, many ways, and we appreciate that.

We will start questioning with Mr. Rokita. You are recognized for 5 minutes.

Mr. ROKITA. I thank the gentlemen for their testimony. Good morning.

Dr. Holtz-Eakin, starting with you. Picking up where you left off, it seems like you have the right recipe there. Let's reform these programs. Let's get spending under control. Let's drive the debt down. Let's continue pro-growth policies of getting regulations under control, as Dr. Cochrane mentioned, and reforming our Tax Code, et cetera, et cetera.

Mr. Ryan, my good friend, the ranking member today, complained, though, that Europe committed the crime of austerity. How is what you are saying different from austerity?

Mr. HOLTZ-EAKIN. So I think you want to recognize that——

Mr. ROKITA. "Crime" is in quotes, by the way.

Mr. HOLTZ-EAKIN. Yes. Looking forward, the key issue is not recovery from a recession. The bulk of that has been accomplished—at a slow pace, but it has happened. The key issue going forward is what can raise the trend long-term rate of economic growth. And that is not a matter of stimulus or austerity, that is a matter of what will enhance productivity, what will enhance the rate of labor force participation, and the kind of components that go into GDP growth. Those are issues associated with structural reforms, as I said, to have better incentives, whether they are in our social safety net or in our Tax Code.

Mr. ROKITA. Thank you.

And setting up for my next question, could you, please, just for the record, give us and folks watching at home, millions of readers who will be reading the transcript of this hearing, what is the definition, what is the difference between public debt and total debt?

Mr. HOLTZ-EAKIN. There is debt in the hands of the public, and then there is total debt, which includes, debt in, for example, the Social Security trust fund within the government. And the total debt is larger as a result.

Mr. ROKITA. Right. So then the question is, since the projected rise from an already elevated 76 percent of public debt to GDP will become more than 85 percent in 2026, twice the average level of the past 50 years, which was only 39 percent, and considering that CBO's long-term projections show the public debt level would jump to 141 percent in 2046 under current law, the highest debt we have ever had, what would be the impact on the economy and the average American family if this fiscal future became a reality, realizing that the 141 percent is still not even the total debt?

Mr. HOLTZ-EAKIN. There is a large literature that, regardless of which way you measure the debt, demonstrates that if you have a high debt-to-GDP ratio you pay a growth penalty. And the U.S. is now in the range—there is a fight about what the range is, obviously—but it is now in the range of paying that growth penalty, and we have slow growth.

So every American family is getting less in the way of income increases, has had a harder time finding a job because of slower eco-

nomic growth. That is a very tangible loss in economic opportunity, and that is what I alluded to in my opening remarks, the pace at which you see the standard of living rise. That is the price. It will get worse as the debt gets higher.

Mr. ROKITA. Turning to you, Dr. Cochrane, regarding the slow growth, we are estimated to have 1 percent growth this year, the last several years have been 2 percent growth, the average growth for this mature economy is, prerecession, is 3 percent. What do you think is weighing on the economy? You mentioned regulations. You mentioned tax reform. You want to go in any more detail, or is there something else?

Mr. COCHRANE. Well, I did want do want to emphasize what Doug just said, which is we are in a very slow-growth moment, and this seems to be emerging as the new normal. What counts here is not a little year or 2 stimulus or whatever, but it is the new normal of 2 percent rather than 3.5 percent, which compounds forever. Growth comes from productivity, and productivity, unfortunately, mostly comes from new ideas, new companies, new ways of doing things, not just government investment.

So ask businesses why things are slowing down. Well, they can't get the permits anymore.

Mr. ROKITA. Right. So it is just regulations?

Mr. COCHRANE. No. We have sand in the gears of the economy all over the place, regulation, law, taxes. Look for lots of places where, unfortunately, the government is getting in the way of this unpleasant process. Remember, when somebody invents a new idea, has a new company, puts the old guys out of business, it is unpleasant. That is why they come to Washington asking for protection. But it slows down the process of growth.

Mr. ROKITA. So we shouldn't settle for 2 percent, 3 percent growth, even though this is, like I said, a mature economy. We are not a new republic anymore, we shouldn't expect 10 percent growth a year, anything like that. What should be our goal?

Mr. COCHRANE. I think we can do much, much better. A precise number is hard to come by. But if you look across the world, notice, for example, the World Bank's ease of doing business index is correlated with astonishingly large levels in the difference of people's welfare. So unless you think this country is perfect, making the ease of doing business here could have similarly large effects.

Chairman PRICE. The gentleman's time has expired.

Mr. Pascrell, you are recognized for 5 minutes.

Mr. PASCRELL. Thank you, Mr. Chairman.

Mr. Chairman, you have really assembled three great testimonies today. We have three great economists. I trust each one of them. I may not agree with them, but that is immaterial. I say that with a full heart.

So Mr. Bernstein referred to the U.S. Census report yesterday. I think that is important, significant stuff, because, Mr. Chairman, if we are ever going to come to a resolution of any of these problems, we have to look at the pluses and minuses. Sometimes I listen to you folks on the other side of the aisle, and then we are ready to throw in the towel. And I know you are not a throw-in-the-towel guy. But in order for us to get resolution, we have to

come to an agreement, we have to come to a resolution. Would you agree? Very good.

So I reject the doom and gloom. There is no denying America is getting stronger economically. The budget projections reflect that as we see more revenue from individual taxes, as working Americans make more money.

But what you don't see going up are revenues from anywhere else. They are flat and they are declining. Corporate income tax revenues in 1952 accounted for 33 percent of all revenue. In 1986, it was down to 23 percent, Mr. Chairman. Today, it is 11 percent.

Now, that is a, to me—I will stand corrected—a huge shift on where we get our revenue in order to run the government. Despite U.S.-based corporations seeing record profits, they are contributing very little to the Federal revenue, when you look at those numbers. I didn't make them up.

Tax reform in 1986 also made it more appealing for our businesses to structure themselves as pass-through companies. You have written, you have talked about this, I know, a few of you on the panel. You pay lower than individual tax rates.

[Chart]

Mr. PASCRELL. Now, I am going to put a chart up here. You tell me. And this is revised every year. It is my favorite, favorite, favorite chart of all time. This chart shows what contributes to our deficit. It destroys the myths that we hear many times in this very room.

So what is the major part of our problem since we, as Democrats and Republicans, have reduced the deficit in the past few years? And look at this chart. The situation from the tax cuts of 2001 and 2003 are going to be contributing proportionately a greater portion of the problem that exists with the deficit that we have in this country. You cannot deny where our budget and where our policy priorities are.

I think that this is a very revealing chart. I don't put charts up much when I speak, but I think this is a very revealing chart of where we are heading that highlights the need for comprehensive tax reform and modernizes our Tax Code and catches income earned by U.S.-based companies in a way that is fair and puts us on a path to fiscal sustainability. And I think that is the key word. Each of you mentioned it in manner, shape, or form.

We can modify the funding stream for Social Security, as an example. I would agree. We have to address it. I mean, we can hide it. We can hide under the desk. When you are a mayor of a town, you don't hide under the desk, they will come and get you. And we do that in Congress, we hide under the desk.

I support the Social Security 2100 Act. I ask you all to look at it, tell me where it is wrong, where it is right. John Larson, many people are cosponsoring it. It would reinstitute the employment tax for Social Security at incomes above $400,000 to shore up the trust fund. Representatives Sanchez and Honda and Pocan are leading another bill to phase out the cap on taxing income above $118,000.

As income inequality grows, the rich pull away from everyone else in terms of income. It no longer makes sense to cap the Social Security.

And in conclusion, simply say this. When you examine what we taxed 30 years ago, 40 years ago, and to see the shift to attacking personal income and taxing personal income, we have to work on this. To me, I believe we are going in the wrong direction on this.

Chairman PRICE. The gentleman's time has expired.

Mr. PASCRELL. Thank you, Mr. Chairman, for your courtesy.

Chairman PRICE. Thank you, sir.

Mr. Renacci, you are recognized for 5 minutes.

Mr. RENACCI. Thank you, Mr. Chairman, and thank you for holding this important hearing to remind us of the consequences of an unsustainable fiscal path.

As the father of three, I believe that we are responsible to leave our children and grandchildren with a country that is financially stronger than the country we inherited. Unfortunately, though, Washington too often chooses to kick the can down the road and not address the challenges we face.

Absent serious reforms, these challenges aren't going away. However, I am very concerned that many here in Congress still don't understand the seriousness of this problem.

Dr. Cochrane, your testimony discussed the dangers of this mindset. You said: "Debt crises, like all other crises that really threaten an economy and society, do not come with decades of warning. Do not expect slowly rising interest rates to canary the coal mine. Even Greece could borrow at remarkably low rates. Until, one day, it couldn't, with catastrophic results.

"The fear for the U.S. is similar. We will have long years of low rates. Until, some day, it is discovered that some books are cooked and somebody owes a lot of money that they can't pay back, and people start to question debts everywhere."

Mr. Cochrane, you also stated: "Debt crises are like earthquakes. It is always quiet. People laugh at you for worrying. Buying insurance seems a waste of money. Until it isn't."

I agree that we need to tackle problems now before the debt earthquake hits. But before tackling the problem, Members of Congress must really start fully understanding it.

That is one of the reasons why I introduced a piece of legislation, a Bipartisan Working Group, entitled the Fiscal State of the Nation, to provide Members of Congress and the American people an annual update on the long-term financial health of the country. Our Nation's finances are one of the most important pieces of information that lawmakers should consider when setting policy agendas for each Congress, but too often I believe that many here in Washington are willfully blind to the subject.

I was a businessman for 28 years. I can tell you that every year, along with every month, I looked at balance sheets and income statements to determine what policies we were going to move forward with, and those became one of the most important reasons that we made decisions we make. We don't do enough of that.

The Fiscal State of the Nation resolution is simple. It just requires the Comptroller General of the United States to present the financial report of the United States to a joint session of Congress on an annual basis. It allows lawmakers and the American public to receive the information in an accurate and timely manner within

45 days of when our country's audited financial statements are issued. Many members on the panel are already cosponsors.

Dr. Cochrane, you note in your testimony that every year the Congressional Budget Office declares our long-term promises are unsustainable. I hear it all the time as well. Yet, Congress continues to just kick the can down the road.

Do you agree that a Fiscal State of the Nation would better help all Members of Congress to understand the pressing financial issues facing our country?

Mr. COCHRANE. You are asking me to comment on a bill I haven't read. The general idea, from what you have described, sounds very useful, in particular because a lot of the accounting for the U.S.'s fiscal situation is quite murky, even by private sector standards.

In addition to what is written down, we have our promises of Social Security and Medicare, which are many times the actual national debt. We have implicit guarantees that we are going to stand behind a bunch of loans and credits and bail people out that pose a danger to the fiscal stance of the United States.

So, yes, being clearer about the numbers might help a lot. Unfortunately, like wars, an army seems like a very expensive thing until suddenly you need it, and the same is true of debt. Our interest rates are very low right now, so it is hard to marshal a campaign that we have to worry about interest rates rising. Well, like wars, keep that powder dry, because you may need it some day.

Mr. RENACCI. Sure. It is interesting, you used the word "murky." I have been here 5½ years. I have tried to understand the 700, 800 pages of financial information presented. I have tried to get it simplified to a simple balance sheet so people could understand it. That has been a difficult charge after 5½ years. It is one of the reasons why I just want somebody to come and explain it all to Members of Congress, because I do think it is an important place.

You also said the rising interest rates on our debts would be less likely the canary in the coal mine but rather more like a looming earthquake. Can you explain that?

Mr. COCHRANE. Yeah. There is a picture that large debt sort of slowly, inexorably drives up interest rates and you can see what is happening. That is a possibility. But I think the larger danger is, one, the U.S. borrows relatively short term, we roll over our debts about every 2 years.

So we are sort of like a household that has taken the floating rate mortgage, and then if interest rates go up, all of a sudden our payments double and our income hasn't changed. And typically, that is going to happen at a moment when the U.S. also has to borrow a lot of money to fight a recession, fight a war, bail out of a bunch of banks, and whatever we want to do.

So we are in that situation that the rising interest rates could make the deficit much less sustainable than it already is. That is the key of what happened in Europe in many ways. You are fine with low interest rates. If interest rates go up, you can't afford anything. So you are very vulnerable to a sharp rise in rates.

Chairman PRICE. The gentleman's time has expired.

Mr. RENACCI. Thank you, Mr. Chairman.

Chairman PRICE. Mr. Ryan, you are recognized for 10 minutes.

Mr. RYAN. Thank you, Mr. Chairman.

Dr. Bernstein, you talked a little bit about research, water quality, transportation. Can you explain to us, in a very elementary way, why you believe that those investments will lead to growth? Because that is the big rub here. We have tax cuts. And I think Mr. Pascrell showed it. I talked about it a little bit. We saw the Bush tax cuts, two rounds of them, we saw deregulation, and we didn't grow jobs.

You are saying make these investments, that is a better approach. Can you tell us why?

Mr. BERNSTEIN. Yeah. Thank you for the question.

There are well-established needs and uses for what economists call public goods in an economy like ours, and these are investments that the private sector, left onto itself, won't make optimally deep enough investments.

Now, when it comes to investing in private production, no question that is by definition a private sector function. But when it comes to education, for example, or basic research, basic R&D, which I should note is at historically low levels in terms of Federal expenditures, or when it comes to safety net programs or the kind of countercyclical programs that you articulated in your opening statement, there is no private firm that will provide them. And extensive work has shown that these are complementary investments to private sector productivity growth.

And to make it very simple, the private sector is going to do lots of applied research. They won't do basic research. The private sector is going to invest in private plants. They are not going to build roads and bridges. The private sector will invest in some worker training, but a suboptimal amount, and they certainly won't invest in public education to the extent that we need it.

So if Congress does not appropriate the dollars for adequate investments in public goods, that will show up as slower productivity growth.

Now, we have two things going on: suboptimal investments in public goods and slower productivity growth. I am not saying by any means that is the only reason. Economists actually are hard pressed to explain these changes in productivity growth. But I am convinced it is an important one.

Mr. RYAN. So when we talk about basic research, why does the public need to do that? Why doesn't the private sector, we will cut taxes, and let them go do basic research?

Mr. BERNSTEIN. That it is a good question. The reason the private sector suboptimally invests in all of the things I mentioned—I will get to your basic research point—is because there is no way for them to either make the scale of the investment needed or to claim the kind of returns on those investments with any certainty that they can be assured of.

So the Internet. The Internet was a project that began in government, in the Defense Department, specifically. There is no private sector firm that could have on their own funded that kind of seed research. Now, once it takes off, the private sector joins in. But I think it is a pretty classical example of an investment that has ultimately been very important to our economy and our growth.

Mr. RYAN. Dr. Holtz-Eakin, do you agree with that on the basic research side, that the government has some role in doing these

kind of things that the private sector can't do, they just don't have enough money to do it on their own?

Mr. HOLTZ-EAKIN. Yes. I think, qualitatively, Jared has summarized the economic argument in favor of the provision of public goods exactly right. My only caution would be to harness your expectations appropriately for the kinds of rates of return and actual impacts on economic growth that you will get.

If you were, for example, to fix the roads between my home and my workplace, something I really would like to see the District of Columbia think about, I would be able to leave later and get to work on time, and I could leave work and get home earlier, and my life would be quite good. But my measured productivity, what I do at the office, wouldn't change a bit. You wouldn't see any impacts in economic growth.

And in my written research, I have a long summary of the research on the productivity effects of public infrastructure. It is usually touted as something we can just do real quick and we will get these great returns. I would urge you to think it won't happen quickly and you won't get great returns. You will have to pick projects sensibly, not through the typical political process, and you will have to target them effectively at the Federal level.

Because the really big returns that you find in a lot of public infrastructure comes when Connecticut steals firms from Massachusetts or vice versa. That doesn't help the Nation as a whole. And so national productivity growth through this route, the impacts are going to be very small.

Mr. RYAN. Well, I think of, like, the space race, right? I think of NASA in the early days. I can't even fathom a President today saying, "Hey, let's go to the moon and spend a bunch of money," what would happen politically, no matter how good looking you are, how pretty your wife is, and how much money you have. I just don't think it would fly today. But if you look at the economic impact of NASA and the spinout of technologies and companies and quality of life and all the rest, that seems to me like a pretty worthwhile investment.

And I would say even the example that you used, from your house to your work. I mean, if you have terrible roads, your car breaks down, you are not showing up to work, you have to go get it fixed, it is money out of your pocket that you could have put somewhere else and spent in the economy, on and on and on, I think there is an argument to be made these are very important investments. And it is not just about you, it is the about the multiplier effect, and you are basically subsidizing businesses in a lot of ways too, right?

Mr. HOLTZ-EAKIN. So three things, probably in reverse order. Number one, ignore multiplier effects. Those common, if at all, only when you are recovering from recession. And this is about long-term trend growth, not about business type of fluctuations.

Number two, yes, there are lots of things that we do in the public sector that make the quality of life better, and that is important, but they don't show up as GDP growth. And if you want to make the argument you want to go from 2 percent to 3 percent or 3.5, this isn't the route to doing that.

Mr. RYAN. How can you say that? Mr. Bernstein's example of the Internet, which was billions of dollars, how can you make the argument that that does not have long-term growth effects on the broader economy?

Mr. HOLTZ-EAKIN. Looking back and picking the big successes isn't what we are going to do going forward. We are going to fund lots of things, including failures. And the average rate of return is not going to look like the Internet or NASA. It is going to look like those plus a lot of failures, at best. So you have to be realistic about what you will get out of this. And I think that is the key.

And, remember, at every point when you do this, you are taking money from the private sector, and it has genuine investment opportunities with rates of return, and the things you get out of public infrastructure should have at least that good a rate of return, if not better, to make it worthwhile. Otherwise, you are actually subtracting. Even if you get a positive rate of return, it has to be positive enough to make it worthwhile to take the money from the private sector. That is the key test.

Mr. RYAN. Mr. Bernstein, your response?

Mr. BERNSTEIN. So a number of responses. I mean, first of all, I agree with a lot of what Doug said, particularly about expectations and investing cautiously. Certainly, no one would challenge the statement that government investments can be—or no one should challenge that government investments can be productivity enhancing or they can be wasteful. We want to do more of the former and less of the latter.

However, there is some really low-hanging fruit. For example, the transportation example is a good one, because while quality of life isn't the same as GDP, if you apply that to moving goods through the supply chain, that really does have a productivity effect. It really does matter if trucks sit on the expressway, not getting their goods to market. It really does matter if our ports are not as functional as they could be.

But, secondly, here is the thing I want to talk about. Preschool, quality preschool education, has been shown to have a particularly large bang for the buck in terms of much later, by the way—obviously, you are not going to help a 4-year-old today and see productivity results tomorrow. But we are, I think all of us, talking about the importance of long-term investments.

There is no question in my mind, I believe this is a bipartisan consensus, at least among researchers, that that kind of investment will be undermade, particularly by low-income families who can't afford the quality kinds of preschool education that they need.

That is a great example of not only low-hanging fruit, but in contrast to Doug's taking from the private sector. The private sector will underinvest in quality preschool, particularly with low-income families who don't have the kinds of deep pockets needed for that.

Mr. RYAN. I have a question for you.

Are we going to do another round of questions, you think?

So I have a question, Dr. Cochrane. You talked about new innovations, new ideas, new efficiencies. We have so many people—and I represent Ohio, old Rust Belt—we have got business incubators that are publicly funded, they are kicking out companies. We have business accelerators. We have the first invasion manufacturing

center, public-private partnership. We have a lot of these burgeoning companies that don't have access to capital, the valley of death that everyone talks about.

Is there a role for the government in these areas to help grow these new ideas, these new companies?

Mr. COCHRANE. So access to capital is an important problem. And I think I would point to a lot of the restrictions of the Dodd-Frank Act, which are really making it hard to get capital to companies like this.

Mr. RYAN. This was a problem well before the Dodd-Frank Act.

Mr. COCHRANE. And the Dodd-Frank Act is just cream on the cake of too much financial regulation getting in the way of exactly the problem you are pointing to.

On the bigger question, we all agree that basic science is worth subsidizing, economists in particular, but basic science is a drop in the bucket of Federal spending. You could double, triple it, and not even notice it in Federal spending.

There, too, the problem is you tend to invest in junk science sometimes.

Mr. RYAN. Can you say that again for my Republicans friends?

Mr. COCHRANE. Basic science is a drop in the bucket of the Federal——

Mr. RYAN. So we wouldn't even notice it if we doubled or tripled it?

Mr. COCHRANE. Absolutely. However, there is a tendency to invest in things like demonstration programs and getting things up to scale. That is very expensive and has proven not nearly as effective as basic science.

I think the big argument we all have that we should talk about is how investments are made, not just how much. There is a tendency to build roads and bridges to nowhere, not the needed roads and bridges. Preschool might be useful, but education is a place where we have all seen you can pour money down rat holes and not improve the process.

So if you improved how you spend infrastructure money, I think you might get a lot more of it more willingly.

Chairman PRICE. The gentleman's time has expired.

Mr. Johnson, you are recognized for 5 minutes.

Mr. JOHNSON. Thank you, Mr. Chairman.

And thank you, gentlemen, for joining us today.

I share the concerns that have been expressed by other of my colleagues. You know, I can remember as far back as 2010 or 2011 when then Chairman of the Joint Chiefs of Staff Admiral Mullen said that the greatest threat to our national security is our national debt. In spite of that, it continues to go in a vertical direction at an alarming rate.

Publicly held debt is projected to rise from an already elevated 76 percent this year to more than 85 percent by 2026, twice the average level of the past 50 years, which was 39 percent. CBO's long-term projections show that level will jump to 141 percent in 2046 under current law, and that would be the highest debt burden in our Nation's history.

So, Dr. Cochrane and Dr. Holtz-Eakin, is this fiscal path sustainable?

Mr. COCHRANE. No.

Mr. HOLTZ-EAKIN. What he said.

Mr. JOHNSON. What he said. Both emphatically no. Okay.

What would be the impact—and I will give you a chance to expand on that—what would be the impact on the economy and the average American family if this fiscal future were to become our reality?

Dr. Cochrane, you can go first.

Mr. COCHRANE. Yeah. What is unsustainable eventually isn't sustained. And the question is, how does it blow up? And as soon as you fix it——

Mr. JOHNSON. What does the blowup look like? We have never had a blowup of that magnitude. I mean, we have never been in this kind of debt. You know, 141 percent will be the largest in our Nation's history.

What, in your opinion, does a blowup look like at that point, and what would the impact be on the American people?

Mr. COCHRANE. If it leads to a debt crisis where suddenly interest rates spike, the U.S. needs to borrow, and bond markets say "no," it looks a lot like Greece, or Greece with inflation, take your pick. That is unpleasant.

The danger of focusing on deficits too much is it leads to "let's raise taxes." This is what Europe did. Its austerity was not cutting government spending. Its austerity was raising taxes, and, as usual, raising—marginal tax rates—adding the disincentives to, God forbid, hire somebody or start a new company. And no wonder that didn't work.

So the temptation would be massive increase in taxes, which just slows the economy down even more. You don't get the revenue. And you end up in a very slow economy for a long time.

Mr. JOHNSON. Yeah.

Dr. Holtz-Eakin.

Mr. HOLTZ-EAKIN. I would concur in that. I would also point out that it undermines the ability of the Congress to do its job, which is to respond to what voters want this country to try to accomplish. If you are locked into spending the money on interest, because you must honor those obligations, and you are locked into spending on entitlements, there is no room for discretion. And it seems quite wrong in a representative democracy to, in 2016, dictate exactly what we are going to be doing in 2026, 2036, and 2046, even in the absence of a crisis, which will also then happen.

Mr. JOHNSON. Sure. I agree.

Quickly, with interest rates at historically low levels, some are calling for more borrowing and deficit financing of government spending—for example, infrastructure spending—to get the economy turned around. With interest expenses poised to become the fastest-growing segment of the Federal budget, do you think that adding to the debt by borrowing more is the answer to our economic ills? Quickly.

Mr. COCHRANE. If the borrowing really did lead to positive rate of return projects, you could pay it back. And I would encourage borrowing to be long term so that if interest rates go up, you are not exposed to it.

The danger is borrowing that, then, gets thrown down the rat hole of stimulus rather than actually investing something that produces higher tax revenues in the future.

Mr. JOHNSON. Okay.

Dr. Holtz-Eakin.

Mr. HOLTZ-EAKIN. A way to think about it is, they are saying now is a good time to do something because interest rates are low. First ask: Is that something you want to do? Is that an infrastructure investment that generally has productivity effects that are larger than what you get out of the private sector? That is the key question, not the timing issue, and we are making bad choices all the time in the infrastructure area.

Mr. JOHNSON. Okay. I have got 5 seconds to ask this question. Is every dollar that we spend, that we borrow, that is a dollar no longer available for economic growth? Is that a safe statement? Yes or no?

Mr. COCHRANE. Yes.

Mr. HOLTZ-EAKIN. Yes.

Mr. JOHNSON. Okay.

Chairman PRICE. The gentleman's time has expired.

Mr. JOHNSON. Thank you, gentlemen. My time has expired.

Chairman PRICE. Mr. Grothman, you are recognized for 5 minutes.

Mr. GROTHMAN. I will give you a general question. And we actually had a panel on a similar topic on Joint Economic recently.

Part of our problem is that income growth is not as rapid as it should be. And I would like you guys to comment on the degree to which that is caused by us currently discouraging work. I got home a couple weekends ago, ran into a CPA, telling me about all the people who were intentionally working less to get their ObamaCare subsidy. And, clearly, the ObamaCare subsidy was designed to encourage people not to work very hard.

The same is true about the wide variety of what you call welfare programs, earned income credit, clearly designed to discourage people from working hard, food share, low income, everything.

I would like you guys to comment on that and the degree to which the slow growth of our economy and, as a result, lower growth in revenues than anticipated, is caused by this seeming policy of the Federal Government today to discourage work.

Mr. COCHRANE. I will start, and I will be quick.

I think "designed" is unfair. It is an unintended consequence that when you phase out a benefit, then that gives a disincentive to work.

More than just work versus not work, it gives you a disincentive to invest in human capital, to make hard investments today that will pay off tomorrow.

Even the CBO report mentioned the ACA as one of the many disincentives to be in the labor force. And the labor force participation rate, I think, is one of our biggest worries. Even prime age males, the numbers of them who are even looking for a job is very low. I think a lot of people are stuck in social programs because of those cliffs. Yes, it would help a lot to get people back to work and back into better jobs.

Mr. BERNSTEIN. So I would like to challenge the premise a bit. In my testimony, which you may not have heard initially, we learned that yesterday, from the Census Bureau, that median household income grew 5 percent last year—real terms. That is the largest growth in household income in the full history of this series that starts in 1967. We have the longest period of job growth on record, 15 million jobs. It started growing in 2010. We have real wages growing, the unemployment rate down by half.

So I don't think that the actual empirical data would bear out some sort of story that says there are disincentives that are discouraging work when we have a job market that is not only generating historical job gains, but historical income gains as well.

Mr. HOLTZ-EAKIN. And I am kind of——

Mr. GROTHMAN. Well, go ahead. I am sorry.

Mr. HOLTZ-EAKIN. I just have to yell at my good friend, Jared, for a while, if you would let me.

Take the report actually with a grain of salt. Remember, this is one data point in a sea of zeros. And it is just hard to understand where you get 5 percent real in this report where there is nothing else growing at 5 percent real in the economy.

If you dig into that report and you look at the increases in earnings of full-time full-year workers, for men, it is 1.6 percent real, for women, it is 2.2 percent real. That is the economy that we are in. We are in a 2 percent economy. The rest, the 5 percent, comes from some additional workers in each household, part-time work, things like that. That is not going to persist. That is not a route to success in the future.

On the question you asked, there is a large literature of the disincentive effects of phaseouts of benefits and other parts of our social safety net, and I think this merits a close examination, because the dividing line between poverty and nonpoverty in the United States is work. If you are working, your probability of being in poverty is low; if you are not, it is 25 percent.

So everything that we do should be pro-work. We have low labor force participation, we have a low employment-to-population ratio, and we ought to think hard about work incentives.

Mr. GROTHMAN. I will have to respond and ask Dr. Bernstein here. Do you ever talk to any accountants out in the real world to tell you, or maybe people in the income maintenance area, or employers who deal with people in the $10 to $15 an hour range? I mean, if you just talk to a few people in that area, you will again and again and again find employers or accountants who will tell you stories in which people are not taking a second job or turning down overtime or turning down wages because it will affect all their benefits. You can do a study, and who knows whether the study is done accurately or not. All you have to do is talk to people and the stories just come like a waterfall out of them.

Mr. BERNSTEIN. If I can respond, I would like to, but if not, I can——

Chairman PRICE. The gentleman's time has expired.

You may quickly respond if you would like.

Mr. BERNSTEIN. Yeah, I do talk to those people, and one of the things they tell me is the earned income tax credit, which is a very important low-wage subsidy, is very pro-work, and they find that

that very much pulls people into the job market and increases their incentives to work. So it kind of pushes the opposite way of some of the ideas you are suggesting.

Chairman PRICE. Time has expired.

Mr. Woodall, you are recognized for 5 minutes.

Mr. WOODALL. Thank you, Mr. Chairman, and thank you for calling the hearing. I knew it was going to be a good one when Mr. Pascrell rejected doom and gloom right from the outset.

I have not been disappointed. There has been a lot of head nodding going on up there. And candidly, I was feeling a little bad about us as an institution, because I thought, golly, if these guys can all get along on these topics, why can't we? And then you all start arguing about data points in the census report. And I think that is right, that we spend so much time around here arguing about data points too.

But the truth is folks didn't disagree with Dr. Holtz-Eakin's point on transportation. Yes, we don't need to improve his commute through the suburbs, we need to improve the 2 of the top 10 most congested freight byways in the country, which run through metro Atlanta, and that is going to have a real productivity increase. And we agree, let's do double National Institutes of Health.

For Pete's sake, you call yourself the grumpy economist, Dr. Cochrane, but every time the agreement comes up, I see a big smile come across the face, that there is opportunity there. Newt Gingrich and Bill Clinton did it. We can do it too.

Tell me this, Dr. Cochrane. When I was with the Bureau of Public Debt, they said, we are going to push out maturity as far as we can. I know we are at record highs now north of 70 months. But they say, we can't push it out too far, because liquidity is going to become a problem if we do. Do you have any concerns about us pushing it out too far too fast?

Mr. COCHRANE. I think we can push it out a lot farther a lot faster. We are actually in the strange position that the Treasury has started to lengthen the maturity to debt, and the Fed turned right around and bought that stuff back up again.

We need Treasury and the Fed to get together on who is in charge of this crucial question. And even the Treasury is not that clear that part of their job is to manage the risks to the budget of what if interest rates go up. They kind of think of their job as try to borrow at the lowest level possible, but not really this crucial question every household faces.

The fixed-rate mortgage, we know what we are paying; the floating-rate mortgage, it looks a little lower, but we could really be in trouble. And not even the Treasury is really in charge of that question.

I think liquidity is overstated. Queen Victoria raised her money on perpetuities that were an infinite maturity debt, and those were very low interest rate. Markets get used to stuff pretty quick.

Mr. WOODALL. Dr. Cochrane mentioned in his opening statement that he thought getting to tax simplification was going to be easier than getting to lower rates. I have found the opposite to be true. I can talk to folks about a percentage point, but if I try to take away your cutout, your carveout, your exemption, your exception, suddenly the pillars begin to rumble.

Dr. Holtz-Eakin, I know you have been active in terms of how we can—we don't have to compete on low wages, we don't have to compete on a dirty environment, we can compete on a competitive international tax code. I feel like this is our opportunity to get that done, I feel like we are getting that consensus on both sides of the aisle. How high does that rank?

I listened to Mr. Ryan's opening statement. I am thinking, for Pete's sake, I don't like paying taxes either. Let's just have Wal-Mart and the big guys pay them all and everything will be great. But I know we can't compete that way in a global economy.

How important is fundamental tax reform and increasing the incentive to perform those tasks in America rather than elsewhere?

Mr. HOLTZ-EAKIN. I think tax reform is extremely important. Fixing the corporate code is top of the list. The corporate code has reached this sort of trifecta of failures, where it is a big impediment to growth and competitiveness, it is impossible to administer and comply with, and it raises almost no revenue. So it makes no sense in its current form.

Lots of evidence that if we could get the rate down to something like 20 percent, internationally competitive, get the base to look like every other one of our competitor countries, that that would benefit workers in America, because increasingly they pay the price of a bad corporate code by losing jobs that have good wages and good benefits, and it would benefit the attractiveness of the U.S. as a location for investment. It would end this inversion nonsense overnight. It is something that you just should do.

Mr. WOODALL. I know you opened your comments with saying you always say it and nobody ever pays any attention, so you move on to point number two.

Mr. HOLTZ-EAKIN. I have been at this for 30 years. I haven't changed one thing.

Mr. WOODALL. Absolutely. I just feel like it is not hot air this cycle.

Mr. HOLTZ-EAKIN. I hope you are right.

Mr. WOODALL. I feel that necessity is pushing us there.

And, Dr. Bernstein, I will ask you, again, lots of head nodding going on up there at the panel, from my side of the side of the aisle, we may have called you here to be the antagonist, but there is lots of agreement in the space.

Is there a short list, as you look at your peers from the left to the right in the economic structure, that say, you know what, if Congress—not if Congress, Congress can, the American people are in a place where we can go through steps one, two, and three right now?

Mr. BERNSTEIN. I think it is a great question. I think some areas where we agree, investment in basic research. Maybe, I am not sure how much we agree, but I think investment in productive transportation would be a useful place to go. And I think there was some consensus on the idea that investment in particularly education, maybe at the preschool level, where families don't often have the resources, that has a long-term payback. And I know that folks around here didn't necessarily want to look at the President's budget, but he does have, I think, a very smart preschool program in there.

Chairman PRICE. The gentleman's time has expired.

Mr. WOODALL. I thank the panel.

I thank the Chairman for his indulgence.

Chairman PRICE. Mr. Blum, you are recognized for 5 minutes.

Mr. BLUM. Thank you, Chairman Price.

And thank you to our distinguished panel of economists. As I sit today looking at you all, I am reminded of Harry Truman's famous line of asking to be sent a one-armed economist, because he grew tired of economists saying, "On the other hand." So I have not heard that much today, so much to your credit.

Dr. Cochrane, the grumpy economist, I guess, to be called, people have said that politics has become a joyless profession. I didn't know economics was the same.

Our economy, as someone said in their opening remarks, is growing at 50 percent of the post-World War II average—50 percent. What do you think is holding back the economy?

Mr. COCHRANE. Lots of sand in the gears. Every single market——

Mr. BLUM. Give me some of those grains of sand, briefly.

Mr. COCHRANE. Overregulation, tax—not just the tax rates. I think actually, if you could spend 5 minutes filling out your taxes and it was a high rate and it was a predictable rate, that wouldn't be so bad. I think the complexity is, in fact, really hurting the growth, because lots of businesses are structured around taxes and everybody is in Washington coming to get their special deal as opposed to just the tax rate.

So, yeah. Regulation. Regulation and economic law. Labor law. We put so many barriers between your desire to hire someone and how much money he or she takes home and their ability to work. There is just sand in the gears everywhere.

I would like to come back for just a second, though. On the corporate taxes, we have got to remember, every cent of corporate tax comes from higher prices, lower wages, in theory lower returns to shareholders, but they just go overseas if they don't get what they want. So almost all comes from people, higher prices or lower wages, and typically those aren't high-income people.

So, in fact, if you reduce corporate taxes and tax the people who get the profits, you even get a more progressive Tax Code, as well as reducing all the incentives for all of those guys to be here every December to come down and ask for some special credit or deal.

Mr. BLUM. Dr. Holtz-Eakin, this is somewhat of a lightning round. I have got six quick questions for you. They are all about growing the economy.

Would reducing the corporate tax rate——

Mr. HOLTZ-EAKIN. Yes.

Mr. BLUM [continuing]. Which is the highest of developed nations, would it help grow the economy?

Mr. HOLTZ-EAKIN. Yes.

Mr. BLUM. Would reducing the regulations on the private sector help grow our economy?

Mr. HOLTZ-EAKIN. Yes. Can I expand on that?

Mr. BLUM. Yeah. Absolutely.

Mr. HOLTZ-EAKIN. I just want to emphasize, we do a lot of work on measuring the regulatory burden at AAF. Sam Batkins has that portfolio.

If you just take what the agencies report as the cost of final regulation—I am not even saying they are right, I have good reason to suspect they are too low—and simply add up the cumulative costs of the regulatory burden since 2009, it is $800 billion in new burden costs. That is a $100 billion disguised tax increase every year for 8 years.

I know there are benefits to regulation, but it is hard to imagine that that is not harming the growth rate of this economy.

Mr. BLUM. Would reducing uncertainty in the private sector help grow the economy?

Mr. HOLTZ-EAKIN. Yes.

Mr. BLUM. Would reducing deficits help grow the economy?

Mr. HOLTZ-EAKIN. Particularly the long-term deficits that lead to the unsustainable rise in the debt, yes.

Mr. BLUM. Would fully developing all American energy resources help grow this economy?

Mr. HOLTZ-EAKIN. Yes.

Mr. BLUM. Would enacting tort reform—we are the most litigious society in the world—help grow the economy?

Mr. HOLTZ-EAKIN. Yes.

Mr. BLUM. Well, that was quick. Thank you for your answers.

My last question, Dr. Bernstein. If we continue to increase our debt as a percentage of GDP, what is going to happen 10 years from now, 20 years from now? Because I think the American public, they hear us all talk about this, and they say: Hey, the sky hasn't fallen today, I don't see any negative impact of this, doesn't seem nearly as bad as everyone says.

What is going to happen.

Mr. BERNSTEIN. So I actually—I am the opposition witness here—but I agree with my colleagues that it is an unsustainable trend when you start looking at numbers that are really in the stratosphere in the outyears.

Mr. BLUM. What will happen? What will happen? What can I tell my constituents?

Mr. BERNSTEIN. I think I am probably closer to John on this, that it is really hard to predict that there will be some sort of an interest rate spike, that is the traditional assumption, but I find that very hard to tease out of the data.

I think you are just two things. You are more vulnerable to the kind of debt crisis that John talks about. But, secondly, when you do hit a rough patch—and there is a recession out there somewhere, we don't know where, it is out there somewhere—it makes it much harder for Congress to implement the kinds of discretionary spending that is very much needed to offset that when you start from such a high debt level.

But let me say one thing about this, sir, if I can just take half a second, I have this in my testimony. While we are all bemoaning the increase in the debt, we all agree on that, if you actually look at the improvement in the trend, say, since 2010, it is quite significant. The debt was, like, unbelievably unsustainable before; now it is unsustainable.

So I am not saying that that is a great outcome, but improvements have been made, and they have been made largely through the channel of low interest rates, but also from the slower growth of healthcare spending, which I attribute in part to the Affordable Care Act. Now, we may disagree on that, but that is a really important point, in my view.

Chairman PRICE. The gentleman's time has expired.

Mr. BLUM. Thank you. I yield back the time I do not have.

Chairman PRICE. Mr. Sanford, you are recognized for 5 minutes.

Mr. SANFORD. Thank you, Mr. Chairman.

And I know the focus of this hearing is on economic growth, but economic growth doesn't wake people up. I want to go back to a degree what my colleague Mr. Blum was getting at, Mr. Johnson was getting at, which is people sort of lull themselves to sleep. I believe we are walking our way into a debt crisis. We are sleepwalking our way in that direction.

And so I want to, again, bore down just as to where he was, into not just marginal difference in economic growth, but if you have a debt crisis, what happens to the economy overall, what happens to people's savings, what happens to the worth of the currency? We may not be able to predict interest rates, to your point, but, I mean, frankly, what happens to our political infrastructure?

I would like to hear from each one of you, do you know of an instance wherein there has been a soft landing, or a benign deleveraging, if you want to call it that, in the wake of a debt spiral and debt spike?

Mr. BERNSTEIN. Can I start, because I will be very brief? Actually, I do, and that would be World War II. That was when we had our maximum debt-to-GDP ratio, 106 percent, and a relatively few years later, it was down in the 30 percent range, and that had to do with very much the kinds of growth in productivity enhancements, full employment economy that many of us are all arguing for.

Mr. SANFORD. I will argue that point. I mean, wouldn't that be as a consequence of Pax Americana? I mean, at the end of the day, we were in essence the only economy standing. If you look at American GDP as a percentage of world GDP right now, it is a very different picture than what we saw in the wake of World War II. And so I would argue that while that is certainly true, it is a very different example, given Pax Americana that existed and the rebuilding, in essence, that we did around the world at that time.

Mr. BERNSTEIN. I think you make a great point, but my only point is that one of the themes of my testimony today is public investment can be helpful here. I actually think public investment—now, it happened to be around a military buildup—but public investment was demonstrably important back then. I am not saying the two examples are analogous, but I do think you can pull out that point.

Mr. SANFORD. Let me ask one point, though. Prior to that, were we a debtor or creditor nation?

Mr. BERNSTEIN. Well, we were much more of a creditor than a debtor nation, sure.

Mr. SANFORD. Which is very different, again. Prior to that point, did the Fed have a balance sheet of about $4.5 trillion?

Mr. BERNSTEIN. No, that is new.

Mr. SANFORD. So, in other words, I could go with a whole host of different examples that would say—so outside of that example, can you give me one? Can anybody give me one?

Mr. COCHRANE. Yeah. So the U.K. grew out of, like, 200 percent debt-to-GDP ratio or more following the Napoleonic Wars. I mean, you can grow out of large debts if you are not running larger and larger deficits on the way.

Mr. SANFORD. The case would be the case of Zimbabwe, Argentina, Venezuela go down the list.

Mr. COCHRANE. Oh, yeah.

Mr. SANFORD. I mean, I think there has been pretty interesting data, I think Berman actually wrote it up, that in the wake of every debt crisis there has been a fall in purchasing power by 99 percent. So if you had a dollar of purchasing power, at the end of the debt crisis you got about a penny, which would fit with Venezuela. I mean, you could go down a long list of examples.

Which is to say, how do we wake people up, whether we come from the left or right in our political perspective, to the fact that there is really serious threat, not just to a drag on the economy. And I think there is conclusive data from IMF, from the European Union, a variety of different folks that say, yeah, there is a drag on the economy when you get up and around certain levels with regard to debt-to-GDP.

But I think the even more pronounced problem is the one that we are not talking about, which is if we play this thing out, we can end up in real trouble. And I would argue that maybe we are much closer than we think, because I saw some interesting numbers the other day.

If you look at household net worth to GDP in this country, we have been at a band around—there has been sort of a trading range, if you want to call it that, 440 to 540, somewhere in that range. It has jumped up around 640 only three times in the last 60 years, one, just prior to the tech bubble bursting; two, just prior to 2008 and the housing bubble bursting; and now we are up around 640 percent.

In other words, I just think that there are a number of cards that could fall that could cause this thing to come much sooner than we think.

You were about to say something. I apologize.

Mr. COCHRANE. Well, I wanted to help you appeal to your colleagues on the other side of the aisle.

What certainly will happen is a fairly chaotic cut in benefit. What happens to countries when they run out of their fiscal ability is people who are counting on Social Security, their cuts come big and heavy and unpredicted. Look at poor Russians, they are stuck. Those pensions went. Health care is going to get rationed and really cheap, and people who are counting on Medicare aren't going to get it.

So you want to reform those programs predictably ahead of time and not when you run out of the ability to borrow money and suddenly people who are counting on it are thrown out on their own. That is what will happen.

Chairman PRICE. The gentleman's time has expired.

Mr. Brat, you are recognized for 5 minutes.

Mr. BRAT. Thank you, Mr. Chairman. I have to go testify on health savings accounts, but I just wanted to ask one quick question, and it will be suggestive, and then I have got to run out.

But a lot of times up here we talk economic growth, and then you get the usual pattern of political responses tied to government programs that already exist instead of going back to first principles and what causes economic growth in the first place, and then asking yourself, are you in the ballpark on those fundamentals or are we just making up kind of new clever things that are trendy politically and trying to hit those in the short run.

So we mentioned R&D, NIH funding, preschool initiatives, infrastructure. So those are examples of the in-vogue kind of things, right? Obama has been doing infrastructure for 7 years and the economy has grown at 1 percent the last couple quarters. So I am unconvinced.

Sand in the gears, I think we are all agreed on that. The regs are huge, and how we overcome that is tremendously large.

So I just want to ask you, if you go back to economic theory from scratch, give me just your top three causes of economic growth, the three variables on the right-hand side of an equation, in order, right, starting with number one, the number one proximate cause of economic growth, number two, number three. If they are cultural, if they are capital, if they are traditional economics, I don't care. But just give me your top three, what do you got.

Why don't you start off, Dr. Cochrane?

Mr. COCHRANE. There is a great quip: Growth started when ideas started having sex. So ideas, new processes, new products, new ways of doing things, from fundamental research, from applied research, but then that can translate into new companies, new ways of doing things. That is the hard part.

Mr. BRAT. Good.

Yep, Jared. Sorry, Dr. Bernstein.

Mr. BERNSTEIN. Sure. Productivity growth, which relates to the kind of innovations you just heard about. Labor supply, so the idea of deporting 11 million immigrants is probably a bad idea. And, three, robust consumer spending fueled by a full employment job market, so middle class and lower-income people are also getting a slice of the pie. That is a problem when you have the kind of inequality we have seen in recent years.

Mr. BRAT. Good.

Mr. HOLTZ-EAKIN. I think the ideas innovation and turning that into new companies and high-quality competition. The biggest indicator of a problem we have right now is that the firm creation rate fell below the firm death rate for a couple years recently. That has never happened before. If you just keep your eye on startups and make sure we get adequate startups, a lot of things will take care of themselves. And past that, you need capital, access to capital.

Mr. BRAT. Good. The immigration, in 30 seconds, I will just say, south of the border immigration, average tenth-grade education level on the human capital side. I am not aware of any growth studies that show average person at the Federal level, welfare benefits $37,000 a year, according to Heritage, $26,000 a year if you have got two kids in school. Productivity growth is low.

But let me go back to my first series of questions. So I love the ideas, right? One of my favorite economists, Chicago, I am going to blank on her name, virtue, she is the virtue one. Anyway, going on to your thing——

Mr. COCHRANE. Deirdre McCloskey.

Mr. BRAT. Yeah. Deirdre, right.

To get at this, what should the Federal Government be doing if we wanted to think way outside of the box, not at the margin, the margin is not working? What do we do to really reinvigorate the private sector in a big way using the limited tools we have right now?

Mr. COCHRANE. A whole lot of get out of the way.

Mr. BRAT. Yeah.

Mr. COCHRANE. And I would add to your immigrants, high-skilled immigrants want to come to this country, build new companies, hire Americans, and pay off Social Security, and we keep them out. At least we could agree on that.

Mr. BRAT. Right. No, that is correct, right.

Dr. Bernstein.

Mr. BERNSTEIN. So I think that the sand in the gears idea that we are hearing a lot about, I think we have to be much more specific there. And I think somebody asked, give us some granular examples of what we are talking about. I wouldn't want to leave this hearing with the suggestion that every regulation is a bad regulation and every regulation should be torn from—but you actually have to go one by one. And I haven't seen nearly enough evidence to substantiate some of John's claims that this is our biggest economic growth problem.

In fact, one of the things you can observe is that we have had actually a boatload of these regulations over time, and growth has been fast and then slow. And so I think you have to kind of get much more granular and less broad.

Mr. BRAT. Yep. Good. And then, Doctor.

And I will just say, we have got $2 trillion in regulatory overreach that has been categorized already.

Mr. BERNSTEIN. That is just not evidence. I take your point, and there may be a relation there, but correlation is not causation.

Mr. BRAT. Right. Got you.

Doctor, 5 seconds.

Chairman PRICE. Quickly.

Mr. HOLTZ-EAKIN. Ozone rule, clean power plan, fiduciary rule, overtime rule. I can go on.

Mr. BRAT. Right. I know that well.

Mr. HOLTZ-EAKIN. I will give you a list.

Mr. BRAT. That is it. Good. Thank you all very much. Sorry to run.

Chairman PRICE. The gentleman's time has expired. Thank you.

I want to visit a couple points that were made by Dr. Bernstein and our friends on the other side of the aisle, and to start with this infrastructure spending. I share an adjacent district to the one that Mr. Woodall has. I know that if those trucks that I am behind on the highway every single day got out of my way because they could move through faster, then I could get where I needed to get faster and they could too, and that would increase productivity.

But the fact of the matter is that a study done by the Congressional Budget Office in June of this year concludes that, quote, "Productive Federal investment has an average annual rate of return of 5 percent, or half the agency's estimate of the average rate of return on private investment," and that if one assumed that $50 billion was spent over 10 years, $500 billion total increase, the CBO concludes that the output would increase slightly, but it would also boost deficits.

In fact, the quote is, "The negative effect on output from crowding out would be stronger than the positive effect from increased productivity."

So, again, we all, both sides of the aisle, want infrastructure spending, targeted, appropriate, wise, smart infrastructure spending. But when we look back on what was done in the stimulus, you talk about something that wasn't targeted, wasn't wise, wasn't logical, didn't have the results that our friends on the other side thought it was going to have—we predicted that it wouldn't—then we are really suspect about this notion of infrastructure spending expanding the economy.

Second, I want to touch on what my friend from New Jersey said at the beginning as he was bemoaning, almost crying over—even though he had lost his doom and groom—but he was almost crying over the fact that corporate taxes only result in 11 percent of the overall revenue coming to the Federal Government.

So, Dr. Holtz-Eakin, what if we were to increase, let's increase the percent of revenue to the Federal Government, let's double it, let's double the corporate income tax, what happens?

Mr. HOLTZ-EAKIN. First, I would just echo the point that John Cochrane made about who is really going to pay that tax. It is not corporations, it is going to be lower-income Americans. And if that is the policy that people want, then fine, but that is what you are going to do.

The second thing that will happen is you will accelerate the loss of headquarters companies from the U.S., without a doubt. This is the most tax-inhospitable place to be headquartered on the globe, and it is a matter of inevitability that headquarters are going to leave, you will just have that happen faster.

Chairman PRICE. We have been trying to bring focus in this committee to the imperative of growth, part of the reason for this hearing, obviously, but the consequences of debt.

[Slide]

Chairman PRICE. And if you put up the first slide, I think, which demonstrates the growth in interest, we harken back to the halcyon days after World War II when we had a debt-to-GDP ratio of 106 percent or whatever it was. But the fact of the matter is that, as Mr. Sanford cited, none of the other dynamics out there were the same as they are right now and things were trending in a good direction both from a spending standpoint and from a growth standpoint.

This is the coming decade, this is the next 10 years of what happens to interest payments, an increase of 187 percent over that period of time, the largest increase in our spending here at the Federal level.

And, Dr. Cochrane, what are people able to do with those dollars that are spent on interest?

Mr. COCHRANE. I think you are pointing it out. Now, somebody might look at that graph and say, well, maybe we would get lucky like Japan and interest rates would stay low and we wouldn't spend that, to which I think you might ask, but what if interest rates are higher than that projection? Now we are in really deep trouble.

A hundred percent debt-to-GDP ratio means that a 5 percent interest rate means the deficit every year is 5 percentage points of GDP higher. It is the risk, I think, more than the forecast.

I would like to also put in another thing to something you said earlier. We have been talking about infrastructure and is it good, is it not. But our growth rate got cut in half. Now, there are potholes. I don't like potholes. But there is no case that potholes and traffic jams are what cut the U.S. growth rate in half. I may have flubbed the question of did regulations really add up to it or not, but there is just no case that we have cut in half growth rate because the roads and bridges are bad.

Mr. BERNSTEIN. That is true.

Chairman PRICE. This is a little bit of a tangent, but let me touch on the issue of regulation, because I think it was you, Dr. Holtz-Eakin, who mentioned the $800 billion of new regulatory costs.

We all, we jump up and down and sputter and spit about the corporate income tax rate and how it is harming growth in the economy, and it brings in, as Mr. Pascrell said, about 11 percent, about $320 billion dollars a year out of a $3.8 trillion budget or thereabouts. And the compliance costs of regulation in this country, the compliance costs of regulation in this country estimated to be $1.8 trillion a year, six times the cost of the corporate income tax.

I noticed that on this long laundry list of items each of you suggested would invigorate the economy and create growth, that regulation wasn't one at the top of the list. But wouldn't getting regulation—again, we all want regulation, smart regulation, wise regulation that does something that actually inures to the benefit of the American people instead of punish the folks who are out there trying to create jobs and institute their better ideas—wouldn't decreasing the costs of regulation, compliance costs, Dr. Holtz-Eakin, have a significant effect on the economy?

Mr. HOLTZ-EAKIN. I think so, yes. And one channel that doesn't get talked about enough is that it is the large incumbent firms that are most easily able to deal with regulatory complexity and cost. They have been around, they get it, they have their lawyers. If you are trying to start a business, it is overwhelming.

And I genuinely worry about the competitive pressures that are missing because firms aren't starting up and the innovations that are not getting put into the economy because of the poor startup rate.

Chairman PRICE. Yeah.

Dr. Cochrane.

Mr. COCHRANE. Oh, boy, how many horror stories of regulation do you want to hear. But I do think we need to get past the rhetoric of too much or too little to the broken structure of regulation,

not just the costs of compliance, as if you can just hire this out and fill out some forms, but the uncertainties. You put your drug application into the FDA, who knows when it will come in or out.

That is something that changes the structure of the business and makes a whole idea unprofitable, not just there is this compliance cost, which bad enough as it is.

Chairman PRICE. Yeah. No, we had a hearing last week on CMMI, Center for Medicare and Medicaid Innovation, that many of us believe is usurping a lot of the legislative authority, the policy-making authority. But the regulations that they are putting in place, the uncertainty of what they are doing, the capricious nature with which they act are the kinds of things that significantly harm growth in our economy.

I was struck, Dr. Cochrane, by one of the statements you made. I think you said we could grow out of large debts with growth if we weren't increasing our deficit at the same time. So it is just kind of a self-evident truth.

Mr. BERNSTEIN. Chairman Price, may I make one comment about the regulation point?

Chairman PRICE. Quickly, yeah.

Mr. BERNSTEIN. So here is a horror sorry about regulation. The implosion of the housing bubble, which was very much a function of underregulated financial markets, that is the other side of the coin. And I just want to be clear that—and you said it yourself—I just want to be clear, we have to think about both sides. Underregulation can also be devastating to our economy.

Chairman PRICE. Let me suggest that the housing bubble was created by the Federal Government, one could argue, by regulations that the Federal Government put in place that required the outlay of capital in a risky way.

Mr. BERNSTEIN. Obviously, I disagree.

Chairman PRICE. I suspect so.

Dr. Cochrane, I want to put in my final minute and a half here, I want to put a face on all of this, because at some point the growth rates that are now down 50 percent, and the projections over a 10-year period of time are down by fully a third, and I suspect it will be less than that unless something changes, the fiscal crisis that we have talked about coming forward, and that you can't read the tea leaves, you can't predict when that is going to happen, but when it happens—because if we don't change policy, it is going to happen—when it happens, what does that look like to Mr. and Mrs. American Public?

Mr. COCHRANE. It already starts bad, because it happens because we failed to grow. So Mr. and Mrs. American Public's income is 20, 30 percent or more less than it would have been otherwise. We are talking about huge numbers when we talk about growth, more than anything else. Yes.

And then you live in chaos. Look what happened in Greece after its debt crisis. You start with a sclerotic economy, you get a dysfunctional government, then all of a sudden the government grabs everything it can.

Chairman PRICE. The promises that we have already made will not be fulfilled. Social Security.

Mr. COCHRANE. You are going to default on something.

Chairman PRICE. Medicare.

Mr. COCHRANE. Those things will have to get cut chaotically.

Chairman PRICE. Medicaid.

Mr. COCHRANE. Yes. Along with savings and businesses and everything else. Don't let it happen.

Chairman PRICE. The Budget Committee has a program ongoing called Restoring the Trust for All Generations, and it is trying to put a face on it, it is trying to say these are the consequences if we don't get our fiscal house in order. And this is certainly a bipartisan project, and I was struck by some of the agreement that we had on the panel today.

I want to thank each and every one of you for coming.

Mr. RYAN. For 30 seconds. Dr. Holtz-Eakin said about startup businesses, and I would hope that this would be an area of agreement. We don't need to talk about the big corporations who maybe have the wherewithal to work the Tax Code, and we all know the game.

But if places like Youngstown, Ohio, or Akron, Ohio, are going to have any renaissance, we need startup businesses. And I agree with you with some of these regulations that some of the smaller startups have to deal with, including getting them capital.

Chairman PRICE. As Dr. Holtz-Eakin mentioned, I think, we have gone through a period now where there are more small business deaths than births, and that is a dangerous place to be for an economy.

So I look forward to working with you as we move forward, because we have to tackle this. The American people expect it and they have a right to expect it and have us get our job done.

Dr. Cochrane, Bernstein, Holtz-Eakin, I want to thank you so very much for appearing before us today. Please be advised that members may submit written questions to be answered later in writing and that those questions and your answers will be made part of the formal hearing record.

Chairman PRICE. Any member who wishes to submit questions or any extraneous material for the record may do so within 7 days.

[Whereupon, at 11:43 a.m., the committee was adjourned.]